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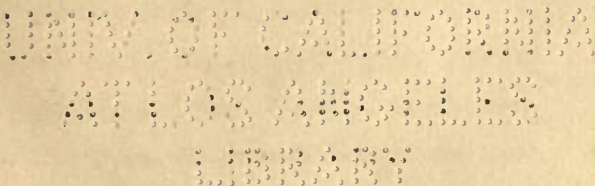
LIST OF ILLUSTRATIONS.

VOL. I.

VIEW OF ADELAIDE, SOUTH AUSTRALIA . *Frontispiece.*

VOL. II.

PLAN OF SUMMER HILL AND LEWIS POND CREEKS *Frontispiece.*



ANNUAL REPORT TO THE
LEGISLATURE
1981

P R E F A C E.

THE present Work commences with a brief review of Australia generally, and a narrative of the discovery of the coasts and the interior of the great island continent. But the main design of my work is confined to the colonies of New South Wales, Victoria, and South Australia. A journey through those important and highly-favoured British provinces, in pursuit of health, has enabled me to collect information which I believe will be of practical use to the emigrant on his arriving in Australia, and also of service to the merchants and manufacturers of Britain who trade with the settlers.

In preparing the Work for the press, I have purposely addressed myself to the middle classes of society ; and my object has been not so much to amuse as to instruct ; and all exaggeration has been scrupulously avoided.

To aid the reader in forming a just estimate of everyday life, both in the town and country districts of Australia, he will find a minute description of the social condition, the manners, and customs of the colonists—in fact, of life as it really exists in the great southern continent.

There are chapters on the climate, the Aborigines, the zoology, the botany, the mineralogy, the gold and copper mines, and the colonial methods of agriculture, horticulture and vine culture, which I trust will be read with advantage by persons requiring information on those subjects. To sheep and cattle farming I have devoted but little space, the subject having already been fully and ably treated by others.

In conclusion, I wish it to be understood, that much of the information in the present Work has been obtained from the old colonists, several of whom were at great pains to answer my inquiries, and furnish useful particulars. In this respect I am greatly indebted to W. Allen, Esq., the talented proprietor of the "Adelaide Times" newspaper, and to Mr. Henry Kelley, of Woodside Farm, Mount Barker, besides several others, whose names I have not permission to mention, but whose kindnesses I equally appreciate, and have much pleasure in acknowledging.

F. L.

NOVEMBER, 1852.

CONTENTS

OF

THE FIRST VOLUME.

CHAPTER I.

	Page
Description of Australia—Early Discoveries—Ex- plorations of the Interior—Aspect of the Country — Australia Felix — The colony of Western Australia.	1

CHAPTER II.

Description of the Aborigines—Their dwellings and mode of life — Savage dance — Hunt for wives — Religion — Soothsayers — Infanticide and cannibalism—Funeral ceremonies . . .	22
---	----

CHAPTER III.

Zoology of Australia—Kangaroos—The wombat	Page
—The bandicoot—Opossums—Squirrels—The native cat—The dingo—The platypus—Birds	
—The black swan—Warblers—Birds of prey	
—Fishes—Reptiles	33

CHAPTER IV.

The woods of Australia—The grasses—Vegetables and fruits—Mode of planting and cultivating. .	53
--	----

CHAPTER V.

The Seasons—Sunrise and Sunset—Australian Nights—The Climate—Intense Heats—Winds	83
--	----

CHAPTER VI.

The farms of Australia—Agriculture and its prospects—Qualities and culture of the soil. .	100
---	-----

CHAPTER VII.

The agricultural population—Progress to independence—The German settlers—Economy of the farms—The farm-houses—Life at the farms .	128
---	-----

CHAPTER VIII.

The Gardening population—Advice to Settlers	Page
—Horticulture.	149

CHAPTER IX.

Mirage—Effect of the climate—Advice on the pre- servation of health	167
--	-----

CHAPTER X.

The Cultivation of the Vine.	177
--------------------------------------	-----

CHAPTER XI.

New South Wales—First settlement at Sydney	
—The City—Australian Alps—Dearth of	
Labourers—The Counties, Mountains, and	
Rivers.	204

CHAPTER XII.

Squatting Districts—Features of the Country— Mountains, Rivers, and Creeks—Stock and Products	241
---	-----

CHAPTER XIII.

Character of the Soil—Occupation of Land—Pur- chase of freeholds—Runs	250
--	-----

CHAPTER XIV.

Sheep Farms—Life in the Bush—Boiling down of Stock — Religious Denominations — The Population — Revenue.	Page 260
--	-------------

CHAPTER XV.

Anticipations of gold—Discoveries by the author —Discoveries by Mr. Hargraves — The gold districts—Licenses	274
---	-----

CHAPTER XVI.

Quality of the Gold—Flight to the Diggings— Rise of Prices—Reaction—Discovery of the Turon Diggings and Lewis Hill — Matrix Gold—Bathurst—Ophir—Enormous piece of Gold.	298
---	-----

A U S T R A L I A

A S I T I S.

CHAPTER I.

Description of Australia—Early Discoveries—Explorations of the Interior—Aspect of the Country—Australia Felix—The colony of Western Australia.

THE great island of “Australia,” so remarkable for its extraordinary productions, both in the vegetable and animal kingdoms; and which by its geographical situation, salubrity of climate and fertility of soil, opens a land of promise to millions of the Anglo-Saxon race, is of comparatively recent discovery; and for the most part, as yet, a wilderness untrodden by civilized

man. A century ago the mere coast line of this "Great South Land" was an unsolved geographical problem: in the eyes of the learned its very existence was a phenomenon so strange, that Blumenbach supposed it a planet dropped from the heavens; and even the distinguished navigators and scientific explorers who so lately have surveyed its coast, and partially penetrated the interior, can arrive at no satisfactory conclusion as to the probable cause, or the epoch of the formation of this incomprehensible territory, whether it has been exuded from the bowels of the earth by volcanic agency, or been recovered within modern times from the waters of the ocean.

Australia is the largest and chief of a group of islands lying to the south of Asia, collectively named Austral-Asia. It lies between $10^{\circ} 45'$ and $28^{\circ} 45'$ S. lat. and $112^{\circ} 20'$ and $153^{\circ} 30'$ E. long. Next to the great continents comprising the "four quarters of the world," it is the largest mass of land known; its greatest length from north to south being 1,680 miles, its

greatest length from east to west 2,227 miles. It contains an area of about 2,690,810 square miles; and its coast line is estimated at 8,000 nautical miles.

Almost everything in nature is, in Australia, the reverse of what it is here. When we have winter they have summer, when we have day they have night; we have our feet pressing nearly opposite to their feet: there too the compass points to the south; the sun travels along the northern heavens; the mercury of the barometer rises with a southerly and falls with a northerly wind; the animals are disproportionately large in their lower extremities, and carry their young in a pouch; the plumage of the birds is beautiful, their notes are harsh and strange; the swans are black; the eagles are white; the moles lay eggs; the owls screech and hoot only in the day-time; the cuckoo's song is heard only in the night; the valleys are cool, the mountain-tops are warm; the north winds are hot, the south winds are cold, the east winds are healthy; the bees are without

sting ; the cherries grow with the stone outside; one of the birds has a broom in his mouth instead of a tongue ; another creature (the duck-billed platypus) unites with the body, fur, and habits of a mole, the webbed foot and bill of a duck. Many of the beautiful flowers are without smell ; most of the trees are without shade, and shed their bark instead of their leaves : some indeed are without leaves, in others the leaves are vertical ; and even the geological formation of the country, as far as ascertained, is most singular.

Taken as a whole, the country, as far as explored, exhibits less hill and dale, with less compact vegetation, than in most other parts of the world. In the interior, there is a lone, barren, stony desert, totally unfit for habitation by man or beast. A more or less broken chain of mountains extends from Spencer's Gulf round the south coast, all along the eastern coast, and round the northern coast, nearly to Limmen's Bight. Between this great horse-shoe range and the sea extends vast,

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fertile, lightly wooded plains ; some parts of the coast belt, however, are barren sandy tracts, studded here and there with huge hillocks of sand. In the interior, beyond the mountains, there are many beautiful fertile plains of considerable extent.

The rivers are few in number, and while subject to great floodings in the winter, fall very low in the summer ; indeed, these con-dary water-courses are, in the summer, frequently quite dried up. The result of this general deficiency of irrigation throughout the country, is a scanty vegetation. No dense forests exist as in America. There are many barren spots, and the herbage generally is thin, the grasses, although highly nutritious, growing in detached clumps.

We know not what European or Asiatic navigators first visited the coast of this vast land, and it is even impossible to determine, with any degree of certainty, as to when or by whom it was discovered ; so inconsistent and contradictory are the statements of the several

navigators who lay claim to this distinguished honour. Probably the Chinese, in remote times, annually visited, as indeed they do now, the northern coast, to fish for the "trepang," or the "sea slug," a nutritive edible which exists there in abundance, and is accounted a luxury by that singular people. Be this as it may, European nations certainly had some idea in the early part of the sixteenth century of the existence of a continent in the southern ocean, as there are two charts in the British Museum, constructed about the year 1540, in both of which is rudely delineated a part of the coast line of a great south land; in one it is named Java le Grande, and in the other, La Terre Australe.

Though the Dutch were the first to announce the existence of this great island, the Spaniards were the first to visit it. New Guinea was coasted in 1526, by Don Jorge de Menezes, and by Alvarez de Saavedra; and in 1543 by Ruy Lopez de Villabolas, who also ranged other adjacent coasts. In Decem-

ber, 1605, Fernandez de Quiros, and Luis Vase de Torres, sailed from Peru in search of the Terra Austral. Quiros discovered what he supposed to be a part of the south continent, and named it Australia del Espiritù Santo. Torres, who had separated from Quiros, coasted along the Louisiad Archipelago, sighted Cape York, and navigated the dangerous channel that separates Australia from New Guinea, and which the distinguished hydrographer, Mr. Dalrymple, generously named Torres Strait. In the same year (1605) a Dutch vessel, the 'Duyfhen,' sailed along the western shore to $13^{\circ} 45'$ S. lat.; and in 1623, Jans Castens, with the Dutch yachts, the 'Pera' and the 'Arnhem,' explored that part of the northern coast named Arnhem. Other Dutch ships are reported to have neared the west coast about this period; but, as the accounts of these early voyages are vague and discrepant, probably some of the navigators mistook the coast of some of the neighbouring islands for that of Australia. However this may be, it is

evident, from a paragraph in a chart by Eesal Gerrits, dated 1627, that the Dutch of that period attributed the first discovery of Australia to Dirk Hartog, who, in 1616, commanded the 'Endraught,' and sailed along the western coast from $26^{\circ} 3'$ to 23° S. lat., which he named Landt de Endraght. Hartog certainly visited Australia, as upon an island at the entrance of Shark's Bay, there was found, in 1697 and in 1801, a plate with an inscription, in which it is mentioned that Hartog left it there on the 27th of October, 1616.

In 1619, Captain Odel, a Dutchman, sailed along the coast from 29° to $26^{\circ} 30'$ S. lat., and to this tract he gave his name. About the same time the 'Leuwin,' a Dutch ship, coasted the land from 55° to $34^{\circ} 19'$ S. lat., $115^{\circ} 6'$ E. long., giving its name to the cape. In 1627, Pieter van Nuyts sailed in the 'Zeepaard,' along the southern coast, for about 1000 miles: the land he traced is named Nuytsland. In the following year, the 'Vianen,' a Dutch ship, coasted along what was subse-

quently called De Witt's Land; and in 1644, Captain Abel Jans Tasman discovered and named that portion of the coast called Tasman's Land. In 1688, the English circumnavigator, Dampier, visited the northern coast to procure refreshments and to careen his vessel. In 1696, William de Vlaming discovered and named Swan River; and in 1699, the observant Dampier, who had left England on a voyage of discovery, again visited Australia. He sailed along the coast from $27^{\circ} 40'$ S. lat., to $16^{\circ} 9'$ and discovered and named Shark's Bay.

From this period no further discoveries were made till 1770, when Captain Cook discovered the east coast, which he surveyed from Cape Horn to Cape York, and named New South Wales. In September, 1791, Captain George Vancouver sighted the coast at Cape Chatham, and two days afterwards discovered and named King George's Sound, now part of Western Australia, the most ill-founded and least prosperous of the Australian colonies. In 1798, Mr. Bass, a surgeon, in concert with Lieutenant

Flinders, discovered and sailed right through the strait now called Bass's Strait, and thence round Van Diemen's Land, thus demonstrating, for the first time, the insularity of that territory. Immediately after this discovery, Flinders returned to England, where he was promoted to the rank of captain, and appointed to take charge of an exploring and scientific expedition to survey the unexamined portions of the southern coast, and otherwise explore the seaboard of the island continent.

Flinders sailed in H.M.S. 'Investigator,' arrived at Cape Leuwin, in December, 1801, and thence proceeded to examine the southern coast. He discovered and named Spencer's and St. Vincent's Gulf, and most of the bays, islands, &c., on the southern coast. The seaboard of the colony of South Australia, so celebrated for its great Burra, and other valuable copper mines, may therefore be said to have been discovered by Flinders. Much of the coast line of the colony of Victoria was also surveyed for the first time by him. Port Philip,

the chief port of that flourishing province, was however discovered by Lieutenant John Murray, ten weeks previous to his arrival in that capacious bay.

Having glanced at the gradual discovery of the Australian coast to the commencement of the present century, we may add, that subsequently King, Wickham, Stokes, and other distinguished navigators furnished valuable nautical surveys of this vast British possession.

It would exceed our limits to enter into a detail of the toilsome explorations of the intrepid adventurers who risked, and in some instances sacrificed, their lives to acquire the imperfect information we possess of the interior of Australia; and therefore we can but enumerate a few of the most important and practically valuable of these expeditions. From the first settlement of New South Wales, strenuous endeavours were made to penetrate to the interior of the country; but every effort to cross the Blue Mountains had failed until 1813, when the colonists having severely suffered by a fear-

ful and long-protracted drought, seconded the efforts of Messrs. Wentworth, Lawson, and Blaseland, in attempting to pass the Australian Cordillera, and, if possible, discover pasturage for their famishing flocks and herds. The adventurers penetrated the mountain fastnesses, pushed boldly on, and by the aid of W. Evans, the Assistant-Surveyor, the beautiful downs of Bathurst and the Macquarie and the Lachlan rivers were discovered.

Captain Oxley, the Surveyor-General, and the first colonial constructor of an Australian map, undertook expeditions, by order of the Government, in 1817 and 1818. He explored the Blue Mountains, examined portions of the Lachlan and the Macquarie rivers, and discovered the Liverpool plains. In 1819, Messrs. Hume and Hovell explored the country in a direction to the south-west from Lake George, in Murray county, New South Wales, to the north-eastern shore of what is now the province of Victoria, and discovered the Upper Murray or Hume, the Ovens, and the Goulbourn rivers.

In 1827, the Government dispatched the late Mr. Allan Cunningham, the colonial botanist, to explore the country between Hunter's River, 32° S. lat., and Moreton Bay, 27° S. lat. Keeping to the westward of the dividing range, he discovered the extensive and valuable country known as Darling Downs, and Peel's and Canning's Plains. He also discovered numerous tributaries of the Darling, and traced that river for a considerable distance inland. In the following year he succeeded in finding a practicable road, known as Cunningham's Pass, across the rugged mountain-chain that divides Moreton Bay and Darling Downs.

In 1828, Captain Sturt explored the Macquarie and portions of the Darling. The latter he left running in $30^{\circ} 20'$ S. lat. $145^{\circ} 30'$ E. long. In the following year, Captain Sturt, proceeded from Sydney to explore the Murrumbidgee. Descending this stream, he passed the confluence of the Lachlan, and, after a week's dangerous navigation, was rewarded by the discovery of the Murrumbidgee with a broad, noble

river, which he named the Murray. Down this fine stream he hurried on, beset with rapids, shallows, sunken trees, and sand-pits, and after passing the junction of the Darling in 34° S. lat., 141° E. long., and pursuing a perilous course for a distance of about 1000 miles, he reached the broad Lake of Alexandrina, or, as it is now called, Victoria, which he explored to the very sand-banks that separates it from the sea at Encounter Bay.

Between 1832 and 1836, Sir T. L. Mitchell made three expeditions into the interior by order of the Government. In 1832, he penetrated to 29° S. lat., and discovered a fine pasturable country, watered by the Nammoy, a large tributary of the Darling. Three years afterwards he explored the course of the Darling for upwards of 300 miles, but with little result, as westward of the river banks he found only a worthless desert. This failure to discover a good country was, however, followed by the most brilliant successes. In 1836, Sir T. Mitchell, after tracing the course of the Lachlan, Mur-

rumbidgee, and Murray, to their junction with the Darling, turned off to the south, and tracing the Murray towards its source, discovered the fine country which, from its beauty and fertility, he named Australia Felix, and in which the flourishing colony of Victoria is now established.

In 1840, Mr. Tyers added to our knowledge of the hydrography of the country between Port Philip and the river Glenelg, as did also Mr. Dixon, at Moreton Bay, and Count Strezelecki at Gipp's Land. In the same year, Mr. Eyre proceeded from Adelaide in South Australia to explore the interior. Lake Turrens, at the head of Spencer's Gulf, he found to be an immense salt lagoon, girdled by sand-beds, and situate in a barren waste, incapable of supporting man or beast. Relinquishing the hope of penetrating the interior, he proceeded to the westward, and examined the country lying between Port Lincoln and King George's Sound, which proved scrubby, badly watered, and generally unfit for pastures or cultivation.

In 1844, Captain Sturt left Adelaide to ex-

plore the interior, and he succeeded in penetrating to the very heart of the country in $29^{\circ} 40' 14''$ S. lat., and $141^{\circ} 30'$ E. long. He thus describes this sterile region :

“The principal features of the interior are the sandy ridges or dunes, by which it is traversed from south to north, and the Gréat Stony Desert. That the whole region traversed was once submerged, there cannot, I think, be a doubt. Its salsalaceous productions, its sea level, its want of trees of any size or growth, except on the banks of the creeks, sufficiently attest this ; but whether the sandy ridges were thrown up simultaneously, or were successively formed by the joint effects of winds, and a gradually retiring sea, or of winds alone, it is impossible to say. When I first crossed the Stony Desert, it appeared to me to have been the bed of a former current, and I felt satisfied that that conclusion was just, when I crossed it at another point more than a degree from the first, and noticed the strong proof it exhibited of waters having at one time or other swept over it with

irresistible fury. Whether the Stony Desert continues to any distance, I cannot say ; but my opinion is that it does, and that, as the lowest part of the interior, it receives all the waters falling inward from the coast. Whether those waters are gradually lost by evaporation, or carried to some still undiscovered sea remains to be proved ; but as it is difficult for others to elucidate these things, I have thought myself called upon to throw every light I can on the probable character of the interior. All I can say is, that after having traversed a desert for 400 miles, and failed to reach its northern limit, and after having found that it continued unaltered for four degrees of longitude, I cannot hope that it speedily closes in, either to the east or west."

In 1844, Dr. Leichardt, a scientific and enterprising German, explored the country from Moreton Bay to Port Essington. He traversed a fine rich district, watered by numerous expansive rivers, and succeeded in

discovering a route from the east to the north-west coast. In 1848, this ill-fated gentleman headed a party, and started from Moreton Bay with the intention of reaching Swan River, by crossing the country from east to west; but as up to the present time nothing has been heard of the expedition since their departure, they must have fallen a sacrifice to their love of enterprize.

In 1846, Sir T. Mitchell headed an exploring expedition, and succeeded in discovering the Fitzroy downs, the Victoria river, and several fertile and enchanting spots to the north-west of the Darling downs. On the return of the expedition to Sydney, the Government dispatched Mr. Kennedy, assistant-surveyor, to trace the Victoria to its sea mouth, it being presumed that the river flowed into the Gulf of Carpentaria. But after following the stream for more than 100 miles, Mr. Kennedy was compelled, by a total failure of water and vegetation, to abandon further research in 26° 15' 9" S. lat., 142° 20' E. long. On

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returning, he discovered an extensive, beautiful and well-watered country lying immediately to the westward of Sir T. Mitchell's previous discoveries.

The melancholy fate of this brave, but unfortunate gentleman, is to be deplored. While surveying the country between Rockingham Bay and Cape York the stock of provisions became exhausted, Mr. Kennedy was killed by the spear of a native, and the whole party, save one man, perished in the wilderness.

The foregoing is a brief account of the most remarkable explorations in Australia. The discoveries by a host of other enterprising individuals, which from want of space I cannot particularise, have been productive of permanent benefit to the Australian squatters, and have added materially to our knowledge of this vast, but singular land.

As the gold discoveries will be detailed in another place, we shall merely mention here, that the precious metal has, up to the present

time, been only found in sufficient quantities to pay for collecting in the provinces of New South Wales and Victoria. Therefore the following pages will be devoted chiefly to those colonies. The other colonies established on the Australian continent are Western Australia and South Australia; of the former we need speak very briefly; but the latter is described at length in the course of the work.

Western Australia was founded in 1829, on the banks of the Swan River, by a party of gentlemen who desired to establish a colony without the aid of convict labour. It is the least active and progressive of the Australian colonies. Its lands generally are so poor and sandy, that great difficulties are experienced in procuring pasturage for the comparatively few sheep and cattle possessed by the settlers. Its mineral riches are not great, or if so, they are not yet developed, as no mines of metals or valuable minerals are at present worked. Coal, however, is reported to have been discovered; and, if the measures are extensive,

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and lie near the coast, they will probably pay for working, especially as the mail steam-ships from England will touch at this province. Another disadvantage to this colony is its distance from the other Australian provinces. Of late years the settlers have increased their trade from the exportation of guano and of sandal wood, a plentiful and valuable indigenous timber. The colony, however, is ill-suited for a settlement of enterprizing British emigrants. It maintains but a feeble existence, and this chiefly by the labour of convicts, who are now sent thither. Many of its early settlers died shortly after landing in want and misery, and hundreds have been ruined by adopting it as their future home. The climate is hot and changeable, but salubrious.

CHAPTER II.

Description of the Aborigines — Their dwellings and mode of life — Savage dance — Hunt for wives — Religion — Soothsayers — Infanticide and cannibalism — Funeral ceremonies.

THE aboriginal inhabitants of Australia are low in the scale of humanity. Their complexion is a brownish-black. The men have projecting jaws, high cheek bones, and are of masculine build. The women are slimly built, and of diminutive stature. In both sexes the forehead is narrow and receding; the hair is fine, long, and dark in colour; the eyes are black and lively; the nose is flat, with large distended nostrils; the mouth large; the lips

thick and prominent ; the teeth white and regular ; and the skull bone of more than ordinary strength and thickness. The legs, especially of the females, are disproportionately thin and slender ; the feet are short, and the toes wide and turned inwards. Both sexes scarify their bodies, anoint themselves with oil, and frequently wear rings, or ornaments in the nose, which they deem a charm against evil.

The aborigines are divided into tribes, each of which has a peculiar district sacred to itself, and it is an universal custom among these people to kill any strange black man who passes through their country. They have no settled habitations, but, like Arabs, roam from place to place in quest of sustenance, at each halting-place erecting miamis, or whurleys—fragile dwellings only a few feet in size, formed of the fresh plucked boughs of trees and bark. The encamping ground has a filthy, repulsive aspect. Before each miami is the spear of the owner planted upright in the ground,

a warning to all intruders. Outstretched on the ground, men and women, some in a state of nudity, and others enveloped in blankets, or opossum rugs, are sunk in the very depths of *ennui* and indolence; and beside them lie their meagre supply of provisions, over which a few gaunt, half-starved dogs are keeping watch. Other individuals are seated round fires, voraciously tearing to pieces, and devouring their half-cooked food; while here and there a man may be seen making spears, or turning opossum skins to form rugs. As evening approaches, the hunting parties return home, fires are lit, their meals rudely cooked, and hastily devoured, and as soon as darkness has fairly set in, they commence the corroboric dance.

These corrobories are generally held on moonlight nights, and during the performance large bush fires are kept burning. The men, in a state of nakedness, with their bodies fantastically painted for the occasion, are the dancers. The women are the musicians; they

sit on the ground like Turks, with their opossum cloaks folded up in their laps, on which, as on so many drums, they beat with their open hands, at the same time singing together in unison and in perfect time their monotonous "Maley—maley—ma—a—ma!"

The leader of the musicians is generally a man, who stands striking two sticks together, and by voice and gesture animates them. The dancers usually move in a line; they strike their toes and heels alternately on the ground, bending their bodies, and turning out the knees in imitation of kangaroos, frogs, and other animals. One of the dancers commonly acts as clown, and excites mirth by his antics; and the precision with which the dancers all move together, the lurid glare of the fires, the pleasing rhythm of the song, and the quick, animating beat of the sticks and rugs, produce an effect wild indeed, but pleasing and harmonious.

In diet the taste of the aborigines is not epicurean; opossums, kangaroos, emus, or other

birds, reptiles, maggots, beetles, ants, gum-grubs, animals that have died a natural death, whether cat, dog, old horse, or bullock, are all eaten with avidity. Should a rotten old hack die, they will crowd to the spot, strip off the skin, and voraciously devour putrid lumps which their impatience scarcely allows them to warm, much less cook.

The principal weapons of the aborigines are the spear, the waddy, or club, and, since the arrival of the white man, the axe or common chopper, and small crowbar. Other weapons there are, both offensive and defensive, but as they are only of occasional use, we shall not stop here to mention them.

Opossums may be considered their staple food: to obtain these the native will climb gigantic trees, making notches with a light chisel-pointed iron bar as he ascends for the insertion of his toes and hands. With equal address and ingenuity, he catches water-fowl by covering his head with rushes, and wading cautiously through the water till within reach

of the unsuspecting birds, which he suddenly seizes. He is swift of foot; walks, runs, and climbs with ease and grace; and his organs of sight, hearing, smell, and touch are much more keen than those of the white man. His language is guttural, but euphonious. His mode of warfare, as compared with that of civilized nations, is puerile.

There are no chiefs or heads of the tribes, and no marriage laws exist; polygamy is common, and every member of the tribe takes as many females under his protection, as the extent of his power or influence enables him to lay hold of. Courtship, in the European sense, is unknown. The men have, at a certain age, one or more of their front teeth knocked out; they then patrol the country in quest of lubras, or gins, as the wives are called.

Adelaide and Melbourne are neutral ground, and there these worthies may be observed, their bodies besmeared with paint, and their heads decorated with feathers, to give them a seductive appearance, prying about in quest of

a partner. At their approach, the black damsels fly in dismay ; a chase ensues, the inamorato, on overtaking the maiden of his choice, stuns her with a blow of his waddy, carries her off, and she becomes his gin, or lubra, or I should say slave, for they treat their women with less kindness than an Englishman shows to his dog.

The aborigines have no belief in God, but they believe in the existence of an evil spirit, which they call "Dibble-dibble," and propitiate by offerings. Of this evil spirit they have a great dread. They believe he is very powerful, and they attribute to him all diseases or accidents. The old men, in nearly every tribe, are soothsayers, or wise men, who profess to hold communion with the "evil spirit," to control the wind and rain, to interpret dreams, which are always considered ominous, and to foretel events. Eclipses, meteors, and other natural phenomena, cause direful consternation ; and their superstitious fears prevent them from moving about in the dark. They have an

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undefined notion of futurity, and believe in the transmigration of bodies. They say: "black fellow go in ground, come up white fellow;" in this manner they account for the arrival of the whites among them. They have no conception, however, of future rewards and punishments. The horrible practice of infanticide, and even cannibalism, is of occasional occurrence among these children of the wilds. The women seldom let a half-caste child live; and when interrogated on the subject, they say: "Knock him piccaniny on head, him piccaniny plenty no good!"

The idea generally entertained among civilized nations that all savages are hardy and healthy, is a mistake. The constitution of the Australian black is peculiarly delicate. From childhood he shoots up to manhood like a reed, and while yet in the years of youth, his bloom fades, his form changes, and he becomes stiff, withered, and frightfully ugly. The mind undergoes an equally perceptible change; and the kind, open, generous, light-hearted youth,

becomes, in manhood, a sordid, crafty, cowardly savage, expert in intrigue, petty theft, and cattle stealing. Few are long-lived: at thirty, they are in the vale of life; at forty, old men and women. They are fast disappearing before the white man, and many of the populous tribes which formerly inhabited the colonies are now buried in oblivion. The introduction of European diseases, and the use of tobacco, and of alcoholic liquors, prove highly detrimental to their fragile constitutions. Numbers are annually carried off by a peculiar disease, which is common among them, and which they are unable to treat; many also die of low fever, and of pulmonary consumption, and of other chest diseases. When a relation dies, they paint their bodies; for days together they sit fasting, weeping, and mourning, and lacerating themselves. They also abstain for a considerable time from washing; and religiously avoid mentioning the name of the deceased. Some tribes bury their dead, some burn them, and others place the corpse in a wicker cover-

ing, which they suspend from the boughs of trees.

That the interests of these people might be protected, and their condition, as far as possible, ameliorated, government has appointed protectors of the aborigines, and assistants, and also instituted "native schools" for the instruction of the black children. But the young savages, who only attend these schools for the food and comforts they afford, profit little by the teachings of the schoolmasters ; and on approaching manhood immediately desert the book and slate, for the spear, the waddy, and the wild life of their parents.

The aborigines of the Australian colonies are now so thoroughly overawed by the settlers, that they rarely commit any depredations upon them, beyond the abstraction of a little flour or sugar from an unprotected hut, or occasionally purloining a stray sheep or bullock. In many instances they are useful to the settlers as labourers, although, being essentially creatures of impulse, and having no ambition to benefit

their condition, they look with contemptuous superiority on the laborious habits of their European associates. They say: "White fellow plenty too much workee, black fellow little workee, black fellow plenty gentleman."

CHAPTER III.

Zoology of Australia — Kangaroos — The wombat —
The bandicoot — Opossums — Squirrels — The native
cat — The dingo — The platypus — Birds — The black
swan — Warblers — Birds of prey — Fishes — Reptiles.

IN the present work it would be out of place to dwell on the zoology and botany of the colonies in Australia. A brief notice, comprising the most important and interesting information must therefore suffice.

There are no dangerous beasts in Australia: lions, tigers, and other blood-thirsty carnivora are unknown; and, indeed, with the exception of one or two varieties of the snake family,

every living creature flies from man, as from a mortal foe.

Most of the quadrupeds are of the marsupial family, an extraordinary race of animals, remarkable for the manner in which they bring forth and nurture their young. A few days after conception, the young animal is produced in a state incapable of motion, and barely exhibiting the rudiments of limbs, when the mother, who possesses an abdominal pouch enclosing the teats, immediately places the imperfect offspring therein, and it becomes attached to the teats of the parent, and remains fixed there until it has acquired a degree of development comparable to that with which other animals are born. There are a few kinds of marsupialia not possessed of abdominal pouches, but the young even of these hang to the mammæ of the mother for a considerable period.

Of kangaroos there are several varieties. The forester is the largest, standing six feet high, and weighing from 100lbs. to 140lbs.;

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the brush is about the size of a sheep ; and the wallabi is rather larger than a cat. Those curious little animals, the kangaroo rat, and the kangaroo mouse, are diminutive kangaroos of nocturnal habits. The latter is but a trifle larger than the common English mouse, whence its name. There is another kind of kangaroo, resembling the brush in size, but with the singular appendage of a nail like that on the finger of a man attached to its tail. The skins of the kangaroos are tanned for leather, and used with the hair on for making rugs and other articles.

The wombat, an awkward, hobbling, short-legged animal, burrows in the ground, lives principally on grass and leaves, and is nocturnal in its habits, sleeping by day and feeding at night. The bandicoot, or pouched badger, is also a burrowing, nocturnal marsupial, with a rat-like body, and a swinish face.

Of opossums there are two varieties, the bush-tail and the ring-tail. They are noc-

turnal in their habits, feed principally on the leaves of gum-trees and grass, live in the hollows of gum-trees, and are remarkable for possessing a flexile toe on each of their feet, which, as regards motion, is almost a perfect thumb. The average size of their bodies is that of a small rabbit; their skins are clothed in soft grey hairs, and their heads in conformation resemble those of the rat. The tail of the ring-tail variety is long and pointed, and used by the animal as a kind of fifth foot or hand. After hanging by this from the bough of a tree, and, for a time, oscillating like a pendulum, the opossum will quit its hold, and swing over a distance of several yards to another bough. The animal will also pick up food with its tail which it then curls under its belly, and presents to its mouth in a most curious manner.

Besides the foregoing, all of which are marsupial animals, there are several varieties of squirrels, and also native cats, spotted like a leopard, some with white, and some with

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yellow spots. The dingo, or native dog, although Australian, is supposed to be originally an intruder. Perhaps the most singular Australian animal is the duck-billed platypus (*ornithorhyncus paradoxus*) which combines in its nature beast, bird, and fish. This curious creature has a body but a trifle larger than a guinea-pig, thickly coated with dirty-brown hair. It has the head of a mole, the bill of a duck, and webbed feet; the fore-feet being armed with spurs which are said to be poisonous. It lays eggs like the duck, hatches them in the same manner, and then suckles the young like the mole. It is very shy, and leads a burrowing life in the mud of rivers and swamps.

Birds are numerous, the plumage of many is very beautiful, but few have melodious notes.

The emu, in size, form and habits, is closely allied to the ostrich; its covering, however, is more wiry or hair like, and its wings and tail are shorter, and destitute of

those valuable feathers with which the ostrich is adorned. It is swift in flight, and very wild. The flesh is coarse, but eatable; the eggs are of a deep green colour, and rather larger than those of the swan. The black swan is a noble bird, producing the most beautiful white swans down. The whole of its plumage is of a rich silky black except the breast and partly under the wings, which are of a snowy white colour.

Some of the feathered tribe are remarkable for the singularity of their notes. The jay, or laughing jackass, startles the traveller with its wild ha—ha; the coachman, or whip-bird, has a note resembling the crack of a whip; the bell-birds, little creatures about the size of sparrows, with green bodies, and yellow bills and legs, ring out a peel as lively as the village chimes; the razor-grinder, poised a few feet in the air, produces a whizzing sound, that might be taken for a cutler grinding up his wares; and the wild silvery tones of the æolian harp are brought to mind

by the notes of the magpies, which in the hills are very numerous. I have a pet magpie that I brought to England with me; it is as tame as a cat, and mischievous as a monkey, destroying or hiding anything it can; it whistles several tunes, sings beautifully, and talks like a parrot. Of the commoner native birds may be mentioned, guse; several varieties of ducks, some very beautiful; pelicans; cormorants; herons; nankeen birds; storks; large white spoon-bills; teal; gorgeous coots, with bright blue and vermilion coloured plumage; pigeons, the handsome bronze-winged, and other varieties; wild turkeys or bustards, fine birds, weighing 16lbs. or 18lbs each; native partridges or quails; native pheasants; snipes, as large as woodcocks; water hens, as small as black-birds; crows, like those of England, but with a note more mournful; white pail-cranes, that chatter like monkeys, and build curious acorn-shaped nests; curlews, speckled black, white, and brown; plovers, two varieties; larks, that neither sing, nor

soar to the heavens, like the English skylark ; wrens, several varieties ; and of robins, the red, blue, black, and pink breasted, all beautiful birds, but silent.

Martins and swallows, rather smaller than the European, and quite as sociable, build under the eaves of cottages, and gracefully flit to and fro the year through in the popular thoroughfares ; where these little creatures built their nests before the arrival of the white man it is difficult to surmise. Those gorgeous birds, parrots, parroquets and cockatoos, are numerous, and celebrated for the noisy harshness of their notes, and the variety and magnificence of their plumage. The lory, the blue-mountain parrot, and the little shell parrot, may be mentioned as exquisitely beautiful both in shape and plumage. The white cockatoo, the black cockatoo, and the red crested cockatoo, are birds graceful in shape and movement, and easily domesticated ; but with a loud, harsh, screaming note. Cockatoos and parrots frequently commit sad havoc in

the corn-fields; a few years back, in the neighbourhood of Mount Barker, the far-famed agricultural district in South Australia, cockatoos were so numerous and destructive to the crops, that the farmers gave any one 6*d.* per head to destroy them. The bird of paradise is about the size of a wren, chocolate brown in plumage, with a graceful feather, about 9 inches long, forming the tail. There are several varieties of honey suckers and humming birds, all very beautiful; indeed, there is a very varied and extensive catalogue of handsome small birds, some no larger than the top joint of the little finger, which, with the exception of the diamond bird, the lyre bird, the blue manikin, and the pitmouse I know only by sight.

Among the birds of prey, there is a vulture so fierce, that when pressed by hunger it will attack the aborigines themselves; fortunately it is very scarce. The white eagle, a noble, but most rapacious bird, as large as a goose, is more common. Of hawks, the

milk-white, the brown, the white throated, and the orange speckled or sparrow hawk, are numerous, and make great havoc among the poultry. There are three varieties of owls; the little spotted owl, the beautiful more-pork, so named from its reiterating that cry, and the bird called buck-buck by the aborigines, and the cuckoo by the colonists.

Fish are numerous in the seas around the Australian colonies, and in the fresh water streams in the interior of the provinces; but as fishing, except for the whale, is a pursuit little followed by the colonists, the supply brought to the markets is irregular, generally scanty, and high priced. In the bays and harbours there are whales, seals, turtle, a fish named by the colonists salmon, but far inferior to the European; grey mullet from 6lbs. to 8lbs. in weight; red mullet from 2lbs. to 3lbs.; snapper, flat-heads, Jew-fish, guard-fish, bream, a rather small but fine flavoured fish; trumpeters, fine in flavour; sting-rays, king-fish, parrot-fish, black-fish, rock-cod, whit-

ing, cat-fish, dog-fish, averaging a foot in length, with a large head and repulsive aspect, and said to be poisonous; oysters in abundance, and of tolerable flavour; crabs, mussels, cockles, whilks and periwinkles. The four last named are not eaten by the colonists. The shells of the whilks and periwinkles are very beautiful. Of fresh water fish the finest is that named the Murray-cod, which is delicate in flavour, ranges from 15lbs to 70lbs in weight, and affords isinglass of the finest quality. The perch of the Murray, and other rivers, resembles the English perch in size and flavour; and some of the crayfish, or fresh water lobsters are as large, and nearly as good eating as the common English lobster.

Reptiles.—Of snakes, many species are to be met with throughout the colonies in Australia, and some of them are but too numerous. The majority of Australian snakes are more or less numerous, but as a family they are by no means so dangerous as may be

supposed. With the exception of the dreaded death-adder, the water snakes which are occasionally met with in the interior, and a small brown species, they are none of them possessed of venom sufficiently virulent to occasion death, if ordinary care and promptitude be exercised in the application of remedies, and the bite of even the most deadly—the death-adder excepted—may be readily cured, if proper measures are taken on the instant.

The largest individual of this family of reptiles found in the colonies, is the diamond snake, which, although formerly reputed to be venomous, and still bearing that character among some of the settlers, is perfectly harmless, destroying its prey by strangulation like the boa constrictor. It is beautifully marked with black and yellow spots, in a diamond or lozenge shape, and hence its name. Its ordinary length is from 8 to 10 feet, although occasionally it is found much larger.

The carpet snake resembles the foregoing in

size, habits and general aspect, but its skin is marked with irregular brown and yellow stripes, or patches. It has no venom.

The black snake is common throughout the provinces, and the largest of the poisonous snakes. Its bite sometimes occasions loss of life, but it is not necessarily mortal, and could only prove so from proper remedies not being applied, or from the extreme terror and nervousness which the conviction of having received a mortal wound naturally breeds in the mind of the person bitten.

This snake is of a dull black colour on the back, with a reddish belly, and is generally about 4 or 5 feet long, but much larger. It is very active in its habits, and, although it will always fly from man, it is bold and vindictive when assailed. To the smaller animals, upon which this reptile preys, its bite is certain death.

Of the brown snake, there are four varieties, two of which are venomous, and two harmless. The largest of these seldom exceeds

4 or 5 feet in length. These venomous reptiles prey upon each other, and but for this species of cannibalism they would probably be still more numerous than they are.

The whip snake is long and slender, deriving its name from its supposed resemblance to the lash of a whip. It is of a greenish tint. Its habits are active, and as it flies from man, it seldom does much injury, although its bite is poisonous.

Of water snakes there are several varieties, all exceedingly venomous, but they are happily not very numerous. Ordinarily they are small, but some of them are of a large size. Most of the ordinary snakes, and particularly the black kind, are occasionally seen in the water, where they swim with great ease and speed, and are frequently taken for water snakes. The true water snakes, however, may be easily distinguished from all others by their possessing a flattened tail similar to that of an eel.

The ring snake is small, marked by alter-

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nate circles of black and white, and is nocturnal in its habits.

The green snake and the blueish-grey snake are also of the small size. There are other small varieties of the snake family, which it is unnecessary to describe in detail: some are venomous, and some harmless, but none deadly.

We now come to the death adder. This is a truly venomous reptile, well worthy of the terrible and significant name by which it is now known, although originally and properly called the deaf adder, from the sluggishness of its habits, occasioned as is popularly believed, by its inability to hear the sound of approaching footsteps. It is most disgusting and repulsive in its aspect, and is at once recognized even by those who have never before seen it. Although in length seldom more than $2\frac{1}{2}$ feet, it is of more than ordinary thickness, and does not taper gradually towards the extremities like other snakes. It has, however, a little hardened and sting-like tail, with which it is generally supposed to have

the power of inflicting a wound as deadly as its bite. This, however, is a mere error. The tail at least is harmless, although it assists the creature in springing at an assailant. This reptile is of a dusky brown colour, with numerous grey spots, and its general appearance is not much unlike that of a dried branch, for which it may, at a casual glance, be easily mistaken, as it lies stretched motionless on the earth.

The death adder never moves aside to avoid the approaching pedestrian; but, on the other hand, it is never the assailant: unless it is fairly trod upon, or struck at, its deadly fangs are never called into requisition. It is consequently easily avoided, and as easily destroyed. The only risk is, that of treading upon it accidentally, or of striking at and missing it. Its poison is very deadly in its operation, and diffuses itself so rapidly through the system, that the life of any person who has been bitten by it can only be preserved by immediate applications of a remedial nature.

Excellent leeches occur in the back waters of the Murray, and in other water-holes. The Murray shepherds procure them by persuading the aborigines to walk into the water and there remain, until a quantity of the reptiles have fastened on their persons. All the leeches used by the faculty in the colonies are thus obtained.

Lizards are numerous, and perfectly innocuous. The small land lizard is a prettily marked little creature, about 4 inches in length. The sleeping lizard is about 10 inches in length, and 5 inches in girth. But the most curious variety is the Jew lizard, so named from a frill behind the head and round the neck. I have a Jew lizard by me which I brought to England alive, but which died a fortnight after landing. During the voyage, the creature took but little food, it learned to know me, would nestle in my lap, allow me to stroke and caress it; and, although to all others it lashed its tail, opened its wide, disgusting blue mouth, and bit very pettishly, to

me it was always tame. It is 16 inches in length, 7 inches in girth, and of a deep brown colour when placid, and a faintish yellow when irritated. The largest of the lizard family is the guana, a brown coloured reptile, with a back serrated like that of the Jew lizard, and in length averages from 2 to 3 feet. It lies for hours on the ground perfectly still, but when approached, swiftly scuffles off, swimming streams, and climbing trees with great agility.

Lizards and snakes are most numerous in swampy places near the coast, and around the lakes and creeks in the interior. Frogs are common. I know but of two varieties: the bell frog, so named from their evening chorus resembling the tinkling of bells, and the bull frogs, that break the stillness of night with their loud and oft-repeated "flump, flump!"

Insects.—The number and varieties of the insect family are in Australia great. Locusts, and several varieties both of flying and of hopping grasshoppers abound in the hottest

season. Common house-flies; blow-flies, like the English blue-bottle, but brown in colour; fleas and bugs are in myriads; and mosquitoes, and stinging sand-flies, are, in swampy places, very numerous. Of ants, there are many kinds, some with wings, and some an inch and a half in length; and the varieties of beetles, ichnumans, spiders, caterpillars, moths, butterflies, &c., are many, curious and splendid. Slugs, snails, and common earth-worms are met with; the two former resemble those of Britain, but the worms, although not numerous, are larger than their British congeners. The gum grub, a milk-white maggot, about 5 inches long, and as thick as a man's fore-finger, is a soft, marrum-like marsal, swallowed by the aborigines whole and alive, after the manner of the lazzaroni with their maccaroni. It is described as exceeding all delicacies. Bees swarm in some places, and the hive-bee, introduced from England, thrives prodigiously, and produces an abundance of fine honey and wax. The venomous insects are the centipede, the

scorpion, and the tarantula. Their powers and malignity have been greatly magnified; for, although they are frequently met with, people are rarely injured by them. The centipede is generally found among dead wood. Its bite is more virulent than that of the scorpion or tarantula, but seldom or never fatal. Still it must not be neglected, or violent inflammation, if not worse consequences, will result. Fingers and toes have not unfrequently been lost from inattention to wounds of this nature. The application of ammonia to the wounded part, with purgative medicines taken inwardly, will usually allay the pain, and prevent all permanent injury. If no ammonia is at hand, a strong drawing poultice may be applied to the part affected with advantage.

CHAPTER IV.

The woods of Australia—The grasses—Vegetables and fruits—Mode of planting and cultivating.

The indigenous vegetation of the Australian colonies is peculiar. Of trees, the encalptæ and acaciæ are the most common. They are all evergreen; most of them put forth rich blossoms in spring, and those that do not periodically throw off their leaves, throw off their bark instead. The foliage is scanty, hangs vertically, and is of a deep sombre green colour, producing a monotonous and mournful aspect, and affording but little shade. The coatings

of bark are thick, and numerous, hence the severe igneous mutilations which the forest trees of Australia withstand without loss of vitality. A sweet substance like manna drops from the leaves of the encaliptæ, and is greedily picked off the ground by the aborigines, the birds, and the ants.

The most general and frequently used timber is as follows :

Stringy bark, a variety of encalyptus, grows in clayey soils, and attains a gigantic size. It is a most durable and useful wood, hard in texture, and even in grain. The settlers split it up into shingles, palings, rafters, battens, &c., for building purposes.

The gum trees, so named from the quantity of gum obtained from them, are all varieties of the encalyptus. They mostly grow on the banks of rivers, or in other humid situations, and attain an immense size. The red-gum, the most common, and the most beautiful of its tribe, is much used in the colonies by cabinet-makers, builders, and wheel-

wrights. It is a hard, heavy, close grained wood, of a deep blood red colour. Being subject to dry-rot, it is less durable than the blue-gum—a hard, heavy, well grained wood, which when polished resembles mahogany in appearance. The white-gum, remarkable for scarcely shrinking in the process of drying, is more mollient, and better fitted for carpentry than either the red or blue varieties, and from it the finest gum is obtained. Although heavy, the gum-timber is well adapted for ship building.

The cedar, of which there are both red and white varieties, grows to a gigantic size, and attains the greatest perfection in the Moreton Bay district to the northward of Sidney: the wood in grain, and general appearance, resembles mahogany. It works easy, takes a good polish, and is very generally used for household furniture, and for building purposes.

Iron bark, a variety of *encalyptus*, growing plentifully in the forests of New South Wales,

and other places, is a timber hard in grain, close in texture, dark in colour, and suitable for house or ship building, and other purposes.

The green and silvery wattle (mimosa) remarkable for the exuberance, beauty, and fragrance of their golden blossoms, are perhaps the greenest and the gayest of the Australian forest trees. They grow on rich soil, yield a plentiful supply of valuable gum, and their bark (worth about £5 per ton) contains a considerable quantity of tannin, and is largely exported.

Rose or violet wood, from which many of the aboriginal tribes make their spears, closely resembles lance wood in grain and texture, and is made up into shafts for gigs, and other light vehicles.

Among the casuarinæ the she-oak, with its pendant branches gracefully hung with leafless twigs like drooping masses of coarse hair, is the most common. In some sandy districts, near the coast, this tree and another variety of

it called the forest oak or beef wood, which grows with its leafless twigs erect, are the only kinds of timber within range of vision. The wood is heavy, hard, of a bright brown colour, and grained similar to the English oak. When well worked up it makes excellent and durable household furniture.

Tulip wood, a curious prettily marked timber, which grows like a cluster of gothic columns, works up beautifully into fancy cabinet work. It is most abundant in North Eastern Australia, where also occur the cabbage-tree, and other varieties of the Australian palm. The monster bunya-bunya, which towering above the surrounding vegetation, attains to 300 feet in height, and 80 feet in girth—the timbers known as satin-wood, rose-wood, cypress-pine, and yellow-wood; besides light-wood, cork-wood, log-wood, fustic, the Australian tamarind, and numerous other species of timber are both useful and ornamental.

The honeysuckle, a dwarf tree, so named

from the supposed resemblance of its blossoms to those of the English honeysuckle, abounds in many places where the soil is light and sandy.

Of pine there are several varieties, chiefly small in size.

Forests of box-tree, a small encalyptus, occur in the poorer soils; where, also, the peppermint, a dwarf tree, the wood of which has an aromatic smell, is frequently met with.

The pear tree, a prolific shrub, of the encalyptus family, growing in swampy alluvial soils, attains the height of about 10 feet. Its leaves have occasionally been used as a substitute for tea: the decoction, however, is too unpalatable and griping to be drank otherwise than experimentally.

Sandal-wood, yam-wood, and the yarra or native mahogany, are all peculiar to Western Australia. They grow in extensive, but not dense forests, attain an immense size, and are valuable for their strength, durability and beauty.

The native cherry or cypress, a pretty bright-green leafless tree, about 16 feet in height, bears a small red, sweet-flavoured fruit, resembling the English cherry in appearance, but with the seed or stone on the outside. The kangaroo apple bears blue blossoms, which are succeeded by small apples, like those of the potato. The fruit, when boiled, may be eaten, but it is very different in flavour. The shrub called the native currant, produces berries resembling the common white currant in appearance, but nauseous to the palate. The native fig in the southern provinces bears fruit that is not eatable; but there is a wild fig in the Moreton Bay district, in New South Wales, that affords a refreshing and agreeable fruit. The family of ferns are remarkable for their variety, size, and beauty: the heaths are numerous, various, and elegant in plumage; and sarsaparilla, and sassafras, of excellent quality, are met with in many places in great abundance.

Of native flowers the orchisis are a beau-

tiful and extensive class. Geraniums, everlasting-buttercups, sun-dews, convolvuluses, hyacinths, and daffodils are all plentiful and handsome. The purple flowers of the native indigo, and the yellow blossoms of the native yam are elegant, and there are many others of the floral tribe, some very beautiful, that are new to the settlers, and as yet have no common appellation. Flax, tobacco, and a variety of the cabbage, are indigenous; and there are several varieties of reeds and rushes, that will ultimately be of commercial value to the colonists.

The xanthorrhæa, or grass tree, one of most curious of the botanical productions of Australia, is commonly met with in exposed situations where the soil is weak, strong, and sandy. Some of the varieties of this more singular than sightly plant, are called by the colonists "black boys," and grow up like a dirty black stick, with a few long, broad, grass-like leaves near the base. Others attain a height of 12 or 14 feet, and throw out

branches that are terminated by spike-like panicles of white flowers, intermingled with long, pinkish leaves

Of native grasses the varieties are numerous; they grow in detached clumps, and are what in England would be deemed poor, thin herbage. Many of them, however, are celebrated for their fattening qualities. The variety known as kangaroo-grass is, perhaps, the most nutritious. It stands drought better than the grasses of Europe, and grows in clumps, bearing a pretty blue flower; but in localities that have been long cropped by live stock, it gives way to other grasses and weeds, and ultimately disappears altogether.

There are several varieties of the fungus family, among which the common mushroom may be mentioned as of frequent occurrence. The mushrooms which I myself gathered were, without exception, rich in flavour and large in size.

The currant, a native of Britain, only succeeds in the mountain district. It thrives best

in a rich, loamy soil, where the situation is cool, and the aspect southern. It is generally propagated by cuttings, which should be planted in autumn, just before the leaf falls, in a shady spot, well protected from the north wind and the mid-day sun. The cuttings should be placed in rows 18 inches apart, and their roots protected from the summer-heat by a covering of litter.

The fig, a native of Asia, grows luxuriantly in Australia, producing two crops in the year. The first, from the Midsummer shoots of the preceding season's growth, ripens in December and January, and is insignificant in comparison with the second, the "Karmouse" or crop of commerce, which is produced from the shoots of the current season, and ripens in March and April. The fruit is fine in flavour, abundant in quantity, presses well, and will probably become a valuable article of commerce. The fig is most fruitful when planted on the plains in a rich, clayey soil, 2 or 3 feet deep, upon a dry

substratum. It is generally propagated by cuttings: they should be fruitful, short-jointed bows, about a foot long, cut in autumn immediately after the leaf drops, and planted at once on the spot where they are intended to remain.

The gooseberry requires both a winter and a summer pruning; the latter should be performed late in October, or early in November; in all else, it should be treated as the currant.

The guava, a native of the West Indies and China, grows to the height of 10 or 12 feet, with glaucous, ovate leaves, from 2 to 3 inches long. There are three distinct species of this exotic, the fruit of the China, or "Cattley's guava," about the size and shape of an orange, with a thin, claret-coloured rind, is much the finest. The pulp resembles a strawberry in flavour and consistency. The guava succeeds best on the plains, in a rich, light, deep soil, where the aspect is northern, and every cold wind shut out. The tree

should be allowed to assume its bushy form, and pruned very sparingly. It may be increased by seeds or layers. The seeds should be sown in pots, in a slight, hot-bed under glass, and the plants allowed to attain a good strength before they are finally planted out.

The loquat, a native of Japan, is a lofty spreading tree, with ovate, lance-shaped leaves, about 8 inches long, and 4 inches broad, bright green and wavy on the surface, and woolly beneath. The fruit is about the size of a pigeon's egg, ripens in September and October, and resembles an apple in form and taste. The loquat should be planted on the plains, where the aspect is northern, in a rich, light, deep, sandy loam. It may be propagated by seeds or layers. The seeds should be sown immediately they are extracted from the fruit, in a moist, shady spot, sheltered from cold winds; and in the following September the plants taken up, and after their top roots are shortened, replanted, where they are permanently to remain.

The melon grows luxuriantly throughout Australia, producing an abundance of fine, rich-flavoured fruit with very little trouble. The melon may be divided into the European and the Persian sweet melons, and the water-melon ; and of each of these the varieties are numerous. There are about fifty different kinds of sweet melon already in the Australian colonies. The finest, and most delicately-flavoured are the green-fleshed varieties, and the Persian melon, particularly that known as the "Ispahan," its pulp being tender and juicy, and richer in flavour than the finest pear. The water-melon is highly esteemed by the colonists for its cooling, refreshing, sub-acid flavour. It attains an enormous size : the largest varieties, however, are not the best. The "pink-fleshed," the weight of which rarely exceeds 24 lbs., is by far the finest-flavoured. The melon is an annual, and of course only propagated by seeds. They should be from two to seven years old, dried in the glutinous liquid of the fruit without being washed, and saved from only the

finest, fully-ripened fruit, of a plant growing far away from other varieties; as melons are very apt to sport.

The ground for melons cannot be too rich; dig it over in autumn, and, if convenient, add some manure, well rotted; for if fresh and rank, it will be sure to burn up the plants as the hot weather approaches. Sow the seeds early in September for the first crop, a fortnight afterwards for the principal supply, and in the middle of October for the late crop. As a rule, the first and last crop is not to be depended on, but the principal crop produces a continuous succession of fruit until checked by the cold weather. When they are up, treat them as directed for cucumbers. The melons of Persia should be cut when they assume a bright yellow colour, and yield soft to the pressure of the thumb on the crown of the fruit—they should never be dead ripe. The melons of Europe may be pronounced ripe when they emit an agreeable odour, and their footstalks near the

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fruit, cracks. The water melon is ripe when the tendril close to the footstalk withers, and when on being slightly pressed by the hand, the fruit crackles. All melons should be cut early in the morning, and immediately placed under cover from the sun.

The mulberry may be divided into two varieties, the black and the white. The former, a native of Persia, is cultivated in all European countries suited to its growth, for its highly esteemed fruit, and as food for silkworms. The white variety, a native of China, is found by the experienced Chinese to yield much the finest silk. The mulberry is propagated by layers, made before the first ascent of the sap in spring, detached from the parent stool in autumn, then planted in rich moist soil in nursery rows, headed down to the bud next the surface of the earth, and only one shoot permitted to grow from each plant, which is fastened to a stake and trained upright. In the following autumn the shoots are pruned to two thirds their original length, trained to

the stakes from the uppermost buds only, and all superfluous branches rubbed off. At the close of the second season, they may be finally planted out in a situation well exposed to the sun, where the soil is a rich, moist, deep loam.

The nectarine requires the same treatment as the peach.

The olive, a native of Greece, is a branching evergreen tree, growing to the height of 20 or 30 feet, with small, ovate, hard, bluish-coloured leaves. The flowers are produced on spikes, issuing from the axila of leaves on shoots of the preceding season's growth. The fruit is an elliptic berry, black when ripe, inclosing a stone to which the pulp adheres. The olive is cultivated solely for the fine oil obtained from its fruit, which there is little doubt in years hence will become a staple produce of the Australian colonies, although at present the plant is only cultivated to a limited extent, and that by persons ignorant of the best mode of cultivating the tree, and extracting the oil from the fruit. The method of pro-

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pagating is by seeds, cuttings, or layers. The Italians prefer plants raised from seeds, the French those from cuttings. The emigrant desirous of cultivating the olive should procure some choice seeds from Italy, or the south of Spain; sow them in autumn in drills a foot apart, in the following May transplant them into rows 3 feet apart, and two years afterwards plant them out finally, in rows 20 feet apart, and 16 feet from plant to plant, in a sandy, gravelly, or rocky soil. In pruning, shorten the shoots of the former or current year. The fruit is produced on the laterals.

The orange, lemon, citron, lime, and shaddock, are all of the same family, natives of Asia, and grow well in the Australian colonies. They are tender evergreens, and only succeed on the plains in spots sheltered from every cold wind, where the soil is a strong, deep, highly manured loam, or, what is preferable, a rich, black alluvial deposit.

The orange tribe are propagated by seeds, cuttings, layers, budding, and grafting. Sow

the seeds in September, immediately they are extracted from the fruit, in a rich, light, moist soil; warm and well-shaded, in drills 6 inches apart and 1 inch deep. Well water the plants in summer, and transplant them in the following May in rows 2 feet apart, first shortening their tap roots. They will be fit to bud or graft upon, two years afterwards. The bitter orange and the citron are the best stocks for sweet oranges. Early in September is the best time for budding and grafting, which, with regard to the orange, will only succeed when performed with great care and exactness. The lemon, lime, and indeed all the family, except the orange, may be raised from cuttings planted in September; although the method of extension usually adopted in Australia is laying, which produces small, but fruitful trees; the operation should be performed in December or January. The fruit of the orange tribe is produced on wood of the current year. In pruning, shorten vigorous shoots, and thin out all superfluous wood, to get an equal distribution of

young wood all over the tree, and a free admission of sun and air. Should the trees be attacked by the blight called "the brown coccus," treat them as directed for the apple.

The peach, a native of China and Persia, grows to great perfection in Australia, producing an abundance of rich fruit, from which many of the settlers make excellent cider and brandy. The most approved methods of extension are by budding and grafting, on the damson plum for heavy clayey soils, and the almond for light soils. When new varieties are required they are raised from seeds. The trees should be planted immediately after the fall of the leaf, in a spot on the plains, where cold and violent winds are shut out, and the soil is a loam of middling texture 2 or 3 feet deep. The peach in these colonies has hitherto been free from disease. The fruit ripens in January.

The plum tribe flourish exceedingly in the colony. They are propagated by budding or grafting on any of the free growing plum

stock, or where durability is the object, by raising seedlings. Plant in June in a rich light moist loam.

The pomegranate, a native of the south of Europe and China, is a tall, deciduous tree with dense, twiggy branches, particularly suited to the climate and soil of the plains of South Australia. The best mode of propagating is by cuttings, treated precisely as the fig. In pruning, cut out all weak wood of the last year's growth, and shorten the stronger branches to induce fruit-bearers for the ensuing season.

The pear succeeds well in the colony: the beurrés and other choice varieties, which require the protection of walls in this country, flourish there as standards. The tree thrives best in a rather poor loam from 18 inches to 2 feet in depth.

The quince, a native of Europe, is generally propagated by layers or cuttings. Make the layers in August, detach them in autumn when the leaves fall, and plant them in nursery rows

3 feet apart, and 1 foot 6 inches between each plant ; then head them down, leaving two eyes above the ground, permit only one shoot to grow from each plant, tie that to a stake and train it as straight as possible. The quince thrives best in a rich alluvial soil, in warm, well-sheltered situations.

The raspberry only succeeds in mountain districts. It thrives best in shady spots, where the soil is rich, light, and moist, the aspect southern, and the hot winds shut out. Make plantations in May, prune in June or July.

Rhubarb succeeds well: it prefers a shaded situation, where the soil is rich, light, deep, and well manured.

The strawberry only succeeds in high districts, where the aspect is southern, and the hot winds shut out. Make plantations in May or June, when the weather is damp and cloudy, in a moderately light loam 2 or 3 feet deep upon a dry situation. Well irrigate in summer, or the fruit will be small in size and quantity, and poor in flavour.

The vine will be treated of in the succeeding chapter.

Culinary vegetables and herbs successfully grown in Australia. — Artichokes produce heads in succession from September till March. They grow best in a strong, rich, deep loam ; well trenched and manured. Plant them in May or June, in rows 4 feet 6 inches apart, and 3 feet between each plant.

Asparagus grows freely, and requires less care than in Britain. Sow the seeds in May or June, in a light, deep, well-trenched, heavily manured soil. Keep the ground free from weeds during summer, and in June following remove the dead stalks, and lightly dig in with a fork a 3 or 4 inch layer of well-rotted manure. Treat the plants the second year as directed for the first, and in the spring of the third year they may be cut for use. Asparagus is in perfection in September and October.

Balm is propagated by dividing the roots in May or June.

Basil is obtained by sowing the seed early in

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September, on a rich, light, soil, and transplanting the seedlings in rows a foot apart.

Bread-beans should be sown late in February or soon in March, in a warm, northerly aspect, for an early supply ; and in the first or second week in May for a principal crop ; in a strong, moist, clayey soil.

Beet. Sow red beet for summer crop in May or June ; and for winter use about the middle of August. White beet succeeds best if sown in July. The soil should be rich, light and deep.

Scotch kale yields sprouts in succession the year round. It should be sown in May or June, and afterwards transplanted in rows with a distance of 2 feet 6 inches by 1 foot 6 inches between each plant. The brignal, or egg plant, is obtained by sowing the seed, in a warm spot, early in September ; and when the sprouts show the second rough leaf, transplanting them into rows 2 feet apart, and 18 inches distant in the rows. The soil should be rich, light and moist. Well water and shade the

plants from the sun until they are firmly rooted.

Broccoli succeeds well. The soil should be very rich and rather clayey. Sow the early purple in the middle of August, for an autumn crop; the sulphur in September, for a main crop; and the cape in December, for a spring supply. The subsequent culture is the same as in this country.

Cabbages are grown to tolerable perfection. For early use, sow the sugar-loaf, or early York, in April, and transplant to an open warm spot, where the soil is tolerably rich. For a summer crop, sow the East Ham, or drum-head; plant in a soil strong, rich, and moist. For autumn use, sow the sugar-loaf in December in a moist, shaded spot, and transplant, if possible, in wet or cloudy weather.

Capsicums are sown in September, and afterwards transplanted.

Carrots may be sown from April until September. May, or early in June, is the best time for the principal crop. The soil should

be a light, deep, sandy loam, rather rich, but not lately manured.

The cauliflower, if well cultivated, attains great perfection throughout the year. It may be sown in February, April, May, and September. The soil for it should be as rich as possible.

Celery should be sown in August, in a rich, moist, shaded spot; cultivate in manured trenches, as in Britain.

Cress may be sown any time, in a moist, shaded border.

Endive succeeds best in a light, humid soil. Sow the seeds any time from February until September. April and May are the months for a principal crop.

Garlic may be planted in April, in a light, rich, moderately moist soil.

Horseradish grows well, in a deep, moist loam. Plant in June or July.

Kidney beans. The scarlet runner will only grow in Australia under very favourable circumstances. The dwarf, or French bean, how-

ever, succeeds well. Plant in the first week of September for an early crop, and make successional plantings until January. The late crops must be well sheltered from hot winds. The kidney bean prefers a rich, light, moist loam. In hot weather, spread litter or straw on the ground between the plants, to protect their roots from the burning sun.

The leek may be sown in February and May, in a rich, moist loam, and afterwards transplanted, as in Britain.

The lettuce prefers a soil rich, moist, and light. Sow the green coss in the last week of February, on a shaded spot. The Malta cabbage and tennis-ball, for a main crop, in April or May, and make monthly successional sowings until the end of September. The brown Dutch is the variety usually sown for a late crop.

Marjoram and mint grow freely; propagate them in July or August.

Mustard may be cultivated any time, in a moist, shaded spot.

The onion grows to greater perfection than in Britain; the Spanish onion succeeds as well as in its native soil. Sow monthly successional crops from April until September, and the principal crop in the second week of May, in a light, rich loam.

Parsley should be sown in April or May, in a moist situation.

The parsnip requires the same general treatment as the carrot.

The pea grows well in any soil of tolerable quality. It may be sown, in favourable situations, when successional crops are required, any time between March and November. The best time for a principal crop is April or May. The summer crops must be sheltered from hot winds.

The potato will only succeed in cool, upland districts, where the soil is a rich, light, humid, free-working loam. Plant tubers six months old, in soil not recently manured, at the close of January, or commencement of February, for an autumn crop, and in July for a summer

supply ; and, if possible, well irrigate them. The following is the colonial mode of storing potatoes, where no coal-cellar or shed is in use : Lay the potatoes, when dry, in a long, triangular, prism-shaped heap, having a base of 4 or 5 feet ; after which spread a coating of dry straw or rubbish over the two upper surfaces of the heap ; then cut a trench round the whole, so as to allow the water to run off, cover the straw with the earth taken from the trench to the depth of 5 or 6 inches, and render the whole as solid as possible, by beating it round with a spade.

Radishes may be sown at any time, in a moist, mellow loam. They must be well watered, and in summer protected from the hot sun's rays.

Sage, and winter and summer savory, succeed in any common soil. Plant them in May or June.

Sea kale grows well in rich, light soil. Sow the seeds, or plant cuttings, in July or August, in a cool, moist, shaded spot.

The shalot should be planted in April, in a very rich, light soil. Keep the ground free from weeds, and no further attention will be required until the leaves wither, when the bulbs must be taken up, dried in the sun, and housed for use.

Spinach succeeds best in a shaded, humid spot. Sow the round-leaved early in March, and the prickly in June.

Thyme should be sown or planted in May. It will grow in any common soil.

The tomato, or love-apple, grows freely when planted in a rich, light soil. Sow the seeds early in September, and when the seedlings are 2 inches high, transplant them in rows 2 feet apart, and 18 inches from plant to plant.

Turnips grow in perfection all the year round, where the situation is cool, moist, and shaded, and the soil a rich, sandy loam; in less favoured spots the seed may be sown at any time, from April until September. The early crops will be the finest.

Vegetable marrow may be sown in a moist spot, late in January, or early in February; and in a warm, sheltered situation, at the close of August, or commencement of September.

CHAPTER V.

The Seasons—Sunrise and Sunset—Australian Nights
—The Climate—Intense Heat—Winds.

As that portion of Australia known as Northern, or Tropical Australia, can scarcely be recommended for location to the intending emigrant, the remarks in this chapter will not apply to it, but only to the country lying to the southward of the parallel of 33° S. lat., which includes most of the available portions of South Australia, the whole of Victoria, and the more southern and temperate districts of New South Wales, including Sydney, the metropolis.

The seasons in Australia are the reverse of

ours, July is mid-winter, January, mid-summer. The spring and autumn are brief, and the transition from one season to the other is so imperceptible, that it is difficult to say when the one begins or the other ends. Spring sets in early in September, when the atmosphere acquires a delightful warmth; as the season advances, the fall of rain decreases, the heat increases, and about the middle of November, summer commences. The heat now becomes great, and by the end of December, nearly all the rivers are dried up, vegetation has ceased, and the country assumes the appearance of an arid desert. At the close of February a diminution of temperature commences, autumn beginning about the middle of March, and early in April, genial showers carpet the country with bright verdure, and the atmosphere becomes pleasantly cool and buoyant.

Early in June, the season that can only be called winter from its situation in the calendar, commences, and by the middle of July, torrents of rain have inundated the country, and

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rendered the water-courses mighty rushing streams; this cold rainy season generally terminates by the middle or end of August.

Between the rains at this season of the year, there are days, and, in some years, whole weeks together, of delightful weather, cool and bracing as spring in England, but more beautiful and exhilarating.

With the exception of about twenty-five extremely hot days, and sixty disagreeable wet or cold days, the weather throughout the year is indescribably pleasant, the air is balmy and bright, scarcely a cloud is visible, and the sun looks down from the deep blue sky in unveiled splendour.

The rising sun is a sight soft and beautiful. The God of day from his eastern portals bursts the ebon pall of night, and flinging wide the purple and vermillion curtain-clouds of morn, illumines the mountains with molten gold, dispensing life and light around, as he majestically mounts into the northern heavens. At the decline of day the scene is magni

ficent ! Onward the mighty orb rolls, like a ball of molten iron, to the legion of gorgeous clouds that have risen in the far west to herald it away ; the hills blaze up with crimson and gold fringed with sparkling silver : the tints of heaven's own iris are scattered over the sky, and the extended plains to the very horizon are tinged with pink. Even the cities and dwelling-places are coloured with the rich, changing hues, and from their windows streams liquid fire.

Day and night are of nearly equal length throughout the year. The sun never remains above the horizon more than about fourteen and a half hours, nor less than ten and a half ; and, as twilight does not linger in these latitudes, the changes from day to night, and from night to morn, are to an Englishman unpleasantly abrupt.

The greater number of the nights are most enchanting. The southern constellations shine forth from the hard, dark heavens in unrivalled brightness, and the haloed moon pours her

chastened radiance on the plains and hills with such refulgence, that everything for miles around is distinctly visible. The light of both the sun and the moon is more intense than in Britain. I should say the difference is as five to three.

The climate throughout the Australian provinces is decidedly hot. The thermometer in Sydney and Melbourne during summer, frequently reaches 90° or 100° Fahr. in the shade; and occasionally 110° , or even more. In winter it rarely ranges below 46° Fahr.; hoar frost sometimes occurs: ice, seldom or never.

The variations in temperature are great and sudden; noonday is frequently 20° hotter than morning or evening, while the heat of one day often differs from that of the next by 15° . Then as the southerly winds are altogether more moist than those from the northward, a change of wind without any alteration in the thermometer often chills severely: indeed, the climate is much affected by the direction of the winds. That which blows from the north-

ward is always extremely dry, and often violent. In winter it is moderately warm, in summer it is intensely hot, and rushes on with the velocity of a hurricane, raising the thermometer in the shade to 110°, or even 120° Fahr., drying up the grass like hay, depriving the grape of its watery elements rendering iron exposed to its influence so hot as to burn the hand on touching it, doing injury to the promising harvest, and filling the air with such quantities of dust and sand, that the sun's rays are shut out and only darkness is visible. The current of heated air appears confined to no particular altitude, but rushes upward or downwards, according to circumstances; sometimes it assumes a rotary movement, as if revolving on a series of horizontal axes, thus: *llllll*; or undulates thus: *~~~~~* Occasionally the hot wind travels so slowly, that its movement is scarcely perceptible; there is then little dust, the heat of the sun's rays is great, and the earth is so torrid, that a thermometer which I sunk horizontally into the

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ground to the depth of $2\frac{1}{2}$ inches, in a situation exposed to the sun and the wind, stood at 151° Fahr. On another occasion I placed a bar of copper about 1 foot long and 3 inches wide by 1 inch thick, in a situation exposed to the hot wind and the sun's rays; when it had been thus placed for about two hours, I wrapped some common post letter-paper round it, and in doing so, it accidentally came against my hand, which it burnt, and in a few hours afterwards the place blistered. After the paper had been in contact with the copper about an hour, its colour changed to a deep straw or pale brown, and it was so scorched and rotten, that it broke in pieces when I attempted to unwrap it. During the prevalence of these siroccos, the high clouds, cirrus, and strata frequently disappear, while the lower remain unchanged; and at night the air is commonly filled with beautiful sheet lightning.

It is believed that there are no noxious gases in these winds, and they are said to exercise no deleterious effects on the health of man; the

climate would, nevertheless, be more salubrious without them, as, during their prevalence, nearly all persons of weakly or debilitated constitutions suffer extreme lassitude and depression. The moisture dries from the eyes, the lips become parched and cracky, the breathing short and quick, the air as it enters the mouth feels burning hot, and while sitting perfectly still the perspiration oozes from every pore in the skin. Individuals of robust constitution, however, are not thus affected: the hardy sun-tanned colonists freely expose themselves to the fiery blast, and, breathing the hot air full of dust and sand, toil on indifferent to everything but the demand of a parched thirst, and, in some cases, a wolfish appetite. When questioned, they reply: "Oh, the heat is no nuisance; it's the choking dust that's unbearable."

The hot winds generally commence about the middle or end of November, and re-occur at intervals throughout the summer until the end of February. They seldom have longer

duration than forty-eight hours, and the number of hot wind days in summer is about fifteen, although different years vary in this respect considerably.

The scorching blasts are succeeded by a wind from the southward, and the change is most sudden and violent. It generally occurs about four o'clock, P.M.: a gale from the south comes rushing on, when the opposing winds battle away right furiously. They howl, shriek, tear up the dust, whiz, whirl, and beat the ground like frantic fiends; the austral invariably proves the stronger, and driving his northern antagonist backwards and upwards into the heavens, marches victoriously onwards, and in his triumphant career is hailed by man and beast as a welcome guest. Immediately the battle line of the howling blasts has passed, the air which a minute before was rendered dark as night by thick clouds of dust, earth, sand, and other light substances, carried up by the furious winds, becomes suddenly clear, and

the sunlight shines out so brightly, that, for a short time, the eyes are almost blinded. When sight returns, on looking northward, a most imposing scene presents itself; a distinctly defined perpendicular wall of dust, which I can only liken to a mighty battlement, dividing the universe, extends eastward and westward to the horizon, and reaching into the heavens, beyond the limits of vision, recedes from view. The variation in temperature, from the hot northern blasts to the chilling squalls from the south, is as great as it is sudden. In November 1850, a hot wind was blowing; my thermometer in Melbourne stood at 108° in the shade, a south wind came, drove back the north, and, in rather less than five minutes, the thermometer fell to 60° , and I shook with cold from head to foot. This variation, 48° , is the greatest that I have registered on these occasions; the least is said to be 25° . Though perhaps disagreeably sudden, the change is, nevertheless, most refreshing

to all animated nature. The birds of the air, and the beasts of the earth, come out from their hiding-places, and gleefully wanton in the bracing breeze; even the dogs that have buried their noses in the corners of your room, and would not go out, though you severely flogged them, now lift up their heads, and with a wough! wough! joyously rush into the open air. The effect on man is equally great; in an hour or so, all lassitude has vanished, and your wonted vigour returned.

The Australian sirocco bears some affinity to the hot winds experienced in many parts of Asia and Mexico, but whether these are caused by local circumstances, or all belong to a system of atmospheric circulation, is not authoritatively decided. There is, however, little doubt that the form, extent, altitude, and latitude, of the regions where they occur, combined with the characteristics of the soil, and the nature and extent of the vegetation, powerfully influence their production. My

own impression is, that, in Australia the northern winds derive their extreme heat from passing over the low, barren, stoney desert in the interior, and that their unceasing oscillations are caused by the constant evolvment of heat from the parched earth, and the force of cooler upper currents, which rush downwards, as the heated air ascends, and in their turn again mount upwards when they become heated.

During the greater part of the year, the colonies are refreshed by cool, exhilarating breezes from the Pacific, and the summer mornings and evenings are usually deliciously cool, clear, and beautiful. On the eastern coast there are daily sea-breezes during summer. On the southern coast, south-west winds blow for about one hundred and forty days in the year, south-east for about fifty, south about thirty, and west about forty days. Thus sea-breezes prevail, at Melbourne and Adelaide, on an average, for about two hundred and thirty days in the year. I

noticed that perpendicular whirlwinds were of common occurrence during the prevalence of southerly winds. These spiral currents are usually from about 15 to 30 feet in diameter ; they carry up the dust and fine sand to an immense height, and look like dirty brown-coloured moving columns ; sometimes they travel on singly, at others they are in companies of three, four, or more. After a time they lose their perpendicular, and gracefully descend to the earth, when they look like falling towers ; as soon as the upper ends of the columns near the earth, the rotatory motion ceases, the dust falls to the ground, and the pillars vanish into thin air. Occasionally a whirlwind will spring up in a moment, carry a cloud of dust into mid-air, and then suddenly cease.

The heat and moisture of the atmosphere of course vary in different parts of the country. In the deep seated mountain ravines, the climate approaches to that of Britain. The thermometer in the shade seldom ranges above

85° Farh., never exceeds 90°, and throughout the winter, frosty nights and snow-storms are common: the rays from the morning sun, however, generally melt the ice. The inhabitants of these hilly districts occasionally suffer from colds and rheumatic affections. I remember sitting on one of these mountains in South Australia, enjoying the clear, balmy breeze, my thermometer 81° in the shade, while beneath my gaze Adelaide and the plains around, were smoking in the dust and scorching blast of a hot wind, the thermometer there being in the shade 107° Farh. In the mountain districts a greater quantity of rain falls than on the plains, the air is elastic and bracing, the hot winds are scarcely felt, and, in truth, the climate is altogether much more suitable to the constitution of an Englishman than that of the plains. The chemical nature of the atmosphere has not been ascertained; I believe its peculiar properties to be tenuity, and extreme dryness. It is usually so clear, that the edges of distant objects appear sharply

carved out, houses miles away seem near at hand, and the hills and forests at the extremity of vision actually seem painted on the horizon. On the plains the atmosphere is rarely humid, except when it rains; fogs, to the best of my knowledge, never occur; and mists not oftener than once in a year, and then only for a few hours. Dews, however, are not uncommon in the winter, in the early spring, and the late autumn months. They become perceptible before nine in the evening, when the atmosphere is perfectly serene. The colonists are not afraid of exposure to them, although, to my knowledge, fever and rheumatics have sometimes been the result.

In the vicinity of Sydney long, protracted droughts are of occasional occurrence; but the position of the colonies on the southern coast insures them copious rains: scarcely a month passing without more or less falling. The heaviest showers are in the winter; they occasionally pour down in continuous torrents, flooding the country, and filling the water-

courses with rushing streams, that move on with the speed and the might of a cataract, snapping ancient trees and sweeping down every obstruction.

Violent thunder-storms, I should say hurricanes, sometimes visit the provinces. They are usually preceded by the gathering of a deep, dense, lowering bank of clouds, generally in the southward: the atmosphere becomes still, heavy, dead, hot, and close almost to suffocation; the breathing of a gentle breeze, and the gradual advancing nearer and nearer of lightning and thunder, indicate the immediate approach of the storm. At length the wind bursts into the full crash of the hurricane, tearing down trees, carrying away portions of houses, bursting in glass-windows, and filling the air with dust and sand; vivid flashes of lightning dart from the deep black heavens in every direction, the rain pours down in floods; and the plains are shook by loud, sharp cracks of thunder, which vibrate from mountain to mountain with awful sublimity.

Frequently, after a heavy peal, there succeeds a minute's interval of death-like stillness; the wind is hushed, the rain ceased, and all is silent, when suddenly down pours a mighty torrent of rain, again the wind bursts out with irresistible violence, the lightning flashes, and the heavy thunder rolls on in continuous roar, which is only silenced by the sudden and tremendous crash of some peal near at hand, which bursts on the ear with awful violence, and strikes the heart with awe. These commotions are of varied continuance, sometimes they last for twenty-four, or even thirty-six hours; at others, within an hour after the outburst, the thunder-clouds disappear, the sky becomes serene, and the sun shines out through the clear air with dazzling brightness. Tremendous hail-storms occasionally occur, and sometimes water-spouts burst among the hills, and inundate the country for miles around. The latter are, however, only of rare occurrence.

CHAPTER VI.

The farms of Australia—Agriculture and its prospects
—Qualities and culture of the soil.

THE management of agricultural farms is very similar in all the Australian colonies; but less grain, in proportion to the population, is grown in Victoria, and New South Wales, than in South Australia, where the small yeomanry class are numerous and highly respectable. The remarks in this chapter will apply directly to the latter province.

Although prior to 1840, there were many beautiful gardens on the banks of the Torrens river, and in other spots in the vicinity of

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Adelaide, no one had yet commenced agricultural operations: indeed, the political vicissitudes, and the building and bartering mania, had hitherto fully occupied the attention of the settlers in South Australia. Besides, labourers were scarce, and every one, even to Captain Sturt, believed the climate far too hot for the successful cultivation of any kinds of grain.

In 1839, a few enterprising individuals thought the experiment, nevertheless, worth making. Some small patches of wheat were accordingly sown on the Adelaide plains, without manure; in fact, upon the sod twice turned over, which grew luxuriantly, turned out very fine in quality, and the yield, when carefully measured was 53 bushels to the acre.

Encouraged by these favourable results, tillage was speedily commenced, farm-houses sprang up in every direction, and agriculture being found profitable and agreeable, soon became a general occupation. It nevertheless required some capital and lapse of time to get these farms, into what in the colony is deemed

good order; *i. e.* the land fenced in, a good dwelling-house raised, with stock-yard, barn, and appurtenances, and the needful live stock, implements, &c.

In 1841, wheat was 20s. per bushel, oats proportionately dear, and potatoes £20 per ton. These extravagant prices induced numerous settlers to commence farming, but as the soil was prolific, the crops firm and abundant, the home-market limited, and few foreign customers for the surplus, by the time the original farms were in tolerable condition, agricultural produce had fallen greatly in value, and many of the large agriculturists were ruined.

In 1844, there was of wheat alone, about 19,000 acres in crop, which if all reaped, would have produced in round numbers, 44,000 bushels; but as the then price, 2s. 6d. per bushel, would not pay for the hire of labour, which at this period was exorbitantly high, much was left standing, and the pigs turned in among it; and although many farmers offered half the produce of hundreds of acres

to whoever would reap it, no one undertook the task: so there it stood and wasted. However, a considerable quantity was housed through the industry of the farmers' wives and families; boys and girls, little and big, all helped, and those who could not use the sickle, did their best with scissors and knives.

This state of things was, to a great extent, the result of the stupid Wakefield notions, which filled the heads of many of the capitalists. They commenced agricultural operations on a large scale, fencing in land, building substantial farm-houses, dairies, stock-yards; and, in fact, surrounding themselves with all attainable conveniences and comforts, without thinking that the very labourers to whom they were paying extravagant wages would speedily follow in their track, when the times would become better for the poor, than the rich man; for prices that would ruin the farmer, would well pay the latter, who, aided by his wife and

family, performed all his own farm operations, even to reaping and getting in the crops, and earned much besides by working for hire. The ruin of the capitalist farmer was followed by scarcity of money; business could only be carried on by barter, bills, or promissory notes; the cattle-farmers, the stockholders, and the commercial community all suffered, and the price of land fell greatly.

Now was the time for the far-seeing man to strike his bargain. In the neighbourhood of Adelaide, deserted farms, fenced in with good dwelling-houses, stock-yards, and all requisites, could be bought or leased for a mere nominal sum. Many a poor man who purchased at this period, has ever since blessed his lucky stars; for, from when the great Burra Burra copper mine started in 1845, until the late discoveries of gold in the sister settlements, the colony enjoyed one uninterrupted prosperity; the members of every vocation, from the wool-grower, the stock-keeper, and

the farmer, to the miner, the merchant, and the retail-dealer, did an increasing and highly-lucrative trade, and many realised respectable competences.

At the period of agricultural depression, in 1844, Mr. Ridley, an intelligent South Australian colonist, produced his admirable reaping and threshing machine, which may be said to have saved the whole agricultural interest from ruin. The body of the machine is about 4 feet 6 inches broad, covered in, built upon wheels like a cart, but much stronger, and driven forward through the standing corn by two horses or bullocks. Two sets of cogs are fixed to the inside of the wheels near the felloes, which drive two small pinions. At the ends of the rod on which the pinions are fixed, are two wheels about 2 feet in diameter; these drive the drum, or beaters, which make 600 revolutions per minute. At the fore-end of the machine, in front of the beaters, is a metallic comb, the teeth of which are about 18 inches long and 1 inch broad; and so

placed, that as the machine is pushed forward, all the ears within the entire width of the wheel tracks are caught up by it—the straw only suffered to pass out, and the heads or wheat-ears guided to the lower cylinder, where they are received by the beaters, and the grain threshed out, and thrown up a curve, whence it falls into the receiving-box at the bottom of the cart, which in general will hold about 9 bushels, and the chaff flies off through a kind of flue at the back end of the cart. With this machine it is usual to reap and thresh from 8 to 10 acres of wheat per day. The crop must be thoroughly ripe, and perfectly dry when the operation is performed, otherwise the beaters, instead of threshing out the grain, will drive the ears back whole to the end of the machine.

In 1846, the farms that had been laying idle were occupied, the lands broken up, and the eye gladdened with the sight of waving corn in every direction. The re-cultivation of these lands, choked up as they were with

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young wattle-trees, wild oats, drake, silver-grass, and other rubbish, all useless as food for cattle, was a labour great indeed. In South Australia you cannot, as in Britain, lay your lands out in grass; neither climate nor soil favour the growth of clover, lucern, or other English pasture herbage: and if land that has been tilled is left untouched for a year or two, it gets quite choked up with vile weeds and young trees. All the colonial hay is either oats, barley, or wheat, commonly cut green, when the ear is full, and before it begins to ripen: cattle like it and thrive on it.

Cultivation commenced along the foot of the hills eastward of Adelaide; then spread westward towards the sea; and in a short time rapidly extended southward and northward. The early agriculturists found the sirocco a devastating enemy, scorching up acre after acre of fine wheat, when just ready for the sickle; the corn-fields on the plains to the north of Adelaide suffered most, although those to the

south were occasionally destroyed by the fiery element.

These occurrences are now rare ; the siroccos are less hot, less frequent, and less protracted than they were ten years ago ; indeed, it is the unanimous opinion of the established settlers, that the annual mean temperature of the colony is gradually decreasing ; but whether this change should be attributed, as some suppose, to the breaking up of the land, and the less frequent occurrence of those extensive forest conflagrations, " bush-fires ;" or, as others assert, to a diminution of terrestrial heat, caused by the extinction of subterraneous fires combined with other influences, is a problem too difficult to be satisfactorily solved by the colonists.

When the Para and Gawler plains on the northward of Adelaide, and the Willunga district in the south, were first brought under cultivation, they seldom averaged a crop of more than 12 bushels of wheat per acre. This was also very generally the average of the

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crops on the Adelaide plains, and no one dared to manure the land, as the hot winds then would be sure to blight the grain just as it was ripening. So particular were the farmers in this respect, that they would not allow live stock of any kind to camp even for one night on the land they intended to cultivate.

Ten years has, however, brought about a most favourable change in the fecundity of the agricultural districts throughout the province. Para, Gawler, and Willunga, now produce crops of from 20 to 25 bushels to the acre of the finest wheat in the world. This increase of fruitfulness must not be attributed to high farming, nor to ten years' cultivation; for last year's land in these districts, that had never before been broken up, produced without manuring splendid crops of wheat, averaging from 22 to 25 bushels to the acre.

There is little doubt that the immediate cause of the change is, as the colonists aver—the reduced temperature of the climate, and more especially the diminished torridity of the

“hot winds” that blow about harvest-time; for within the last four years, the land both on the north and the south plains has been manured to advantage, and without in any way increasing the susceptibility of the crop to the sirocco blight.

The present mode of managing farms varies considerably; many of the intelligent monied farmers pay some regard to fallowing, manuring, rotation of crops, &c.. Indeed on some spots the soil is becoming exhausted, and manuring, or trench-ploughing, so as to turn up some virgin soil, is of necessity resorted to. This is particularly the case with the old established farms on the plains of Adelaide. There are, however, other instances where successional crops of wheat have been reaped for ten years, without once fallowing or “heartening up” the soil, which still retains its pristine fruitfulness, and until it exhibits unmistakable symptoms of exhaustion, will, doubtless, be taxed as hard as heretofore; for most Australian farmers pursue the unwise system of growing nothing

but wheat year after year, until the soil is "run out," when manuring, fallowing or trench-ploughing becomes indispensable. The following is the colonial mode of fallowing:—From the time the crop is cleared off, which is generally in December or January, the land is left idle without being ploughed until after the succeeding winter; then cattle and horses are turned on to it to eat up the self-sown stuff, after which, it is deeply ploughed, and allowed to stand over until April or May, when it sometimes gets another ploughing, and is then sown for a crop.

The annexed excellent method of keeping the soil in good heart, is now adopted by many intelligent agriculturists. Presuming the land to be cultivated consists of 80 acres; 40 acres are ploughed, and the seed got in by the 1st of June at the latest, and when, after the heavy rains, the ground begins to dry, which will be about the end of September or beginning of October, the remaining 40 acres are broken up, and allowed to stand over until

May following, when they are sown. The 40 acres first sown, after being reaped in December or January, are allowed to remain, without being ploughed, and about 20 acres prepared for hay; that is, all the light grains are strewn among the stubble, and well harrowed in. This produces an excellent crop, which in October (hay season) is cut down and stacked; after which the whole 40 acres are ploughed up, and left in fallow for next season; and so forth in rotation, 40 acres in crop, and 40 acres in hay and fallow, year after year. Those who farm with bullocks do not plough up the first sown 40 acres after cutting the hay, but leave the whole as a paddock for cattle—the feed from the self-sown stuff being abundant—until seed-time, when it is ploughed one day, and sown the next. This plan of cropping, is evidently more profitable than the old plan of cultivating wheat year after year without fallowing, or in any way stimulating the soil; for the farmers who have adopted it, reap 30 or more bushels per acre without injury to the soil,

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while, under the old system, 20 bushels per acre is the average. Thus by keeping the whole 80 acres constantly under crop, the produce is only increased by a third, while the cost of ploughing, seeds, sowing, reaping, &c., to say nothing of extra trouble, is doubled; and the over-wrought land will sooner or later require protracted fallows and expensive dressings.

Most of the land for growing grain, is ploughed up in May, as soon as the rains have softened it; although some of the old colonists plough in April, be the ground soft or not. Indeed, but for the expense, all farmers would turn the land over when it is hard and dry, as such treatment increases fruitfulness. The colonial plough is generally made of wood, rough, strong, and heavy; it turns up the ground to the depth of about 8 inches, and is commonly drawn by bullocks, two in number, for light land previously tilled; and from six to eight for breaking up new ground. The work is turned out rough, the furrows uneven and badly flanked.

Immediately the ploughing is finished, the seeds are sown—broad-cast, and well harrowed in—nothing more being done until the ripened grain needs cutting. From 1 to $1\frac{1}{2}$ bushel of wheat, according to the quality of the soil, is enough to sow an acre; the poorer the soil, the larger the quantity of seed required. The seed, prior to sowing, is separated from the seeds of indigenous grasses, wild oats, &c., by being sifted, and immersed in water, and whatever floats skimmed off; after which, wheat, to protect it from the smut, is generally steeped in a large tub of water, in which is dissolved sulphate of copper, in the proportion of 2 oz. for every bushel of wheat, operated on. After being immersed about three hours, the grain is taken out, spread on the floor to dry, and on the following day sown.

Wheat is a grain chiefly grown throughout the colony; its culture is simple, it succeeds in most of the ordinary soils, and is more profitable, and stands the burning rays of the sun better than any other grain. The farmer

who would reap his wheat with the machine must sow a variety that stands up well when ripe. That named the "red strawed" is, in the colony, of all others the most prolific, and the most universally grown, but as it hangs its head when ripe, it cannot be reaped with the machine without great waste. The following kinds are grown especially to be reaped with the machine, the white hamas : Brody's prolific, Duffield's creeping, and Frome's wheat ; the last, however, cannot be recommended, for, although it stands up well when ripe, it threshes badly.

It may be well to mention that South Australia grows more wheat than she consumes ; and that, although large quantities have been exported chiefly to the Cape of Good Hope, Mauritius, and England, in which countries South Australian wheat invariably bears the highest character, and brings the greatest price ; the want of a constant, ready, and near market, has been much felt by the farmers of South Australia. Now, however, as soon as the colony

has recovered from the shock of the gold panic, wheat for the supply of the Victoria, and New South Wales gold diggers, will doubtless become its greatest staple export.

Oats are grown as food for horses, pigs, &c., and only succeed in the cool mountain districts. They are largely cultivated, and grow to perfection at Mount Barker. The supply, however, is not equal to the demand; and, as with the potato and apple, the deficiency is made up by importations from Van Diemen's Land, where from the greater coolness of the climate the oat grows more freely. Oats grown in the colony are very liable to degenerate into the wild oat, a black, hairy kind, good for nothing when threshed, although the best for hay; as it grows very long and fine in the stem. The seed for a crop must be well sifted and washed, and, if possible, freed from all black ones; indeed, it cannot be too clean. Some farmers get seeds from Britain, but these, if not cultivated with great regard to cleanliness, become, in two or three

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years, choked up with wild oats, and themselves indifferent in quality.

Barley grows to perfection ; the kinds cultivated are the English or two-rowed, the Cape or four-rowed, and the skinless barley, so named from its resemblance to wheat. The English is in the greatest demand ; it fetches the highest price, makes the best malt, and is consumed in large quantities by the brewers. The Cape and skinless are grown mostly as food for horses and pigs, being frequently cheaper than oats : the grain when crushed or boiled, and mixed with a little bran, makes excellent food. Many farmers procure a supply of green barley (cut before it begins to ripen) for their horses, the year round, by sowing successional crops, at different times, in small patches. The barley crops are frequently much injured by "cut-worms," dirty, white-looking grubs, about an inch in length, which suddenly appear in thousands, and, when the grain is nearly ripe, climb up the stalks, gnaw off the heads, and suck the juice from the stems.

These creatures are nocturnal, commencing their depredations after sun-down and ceasing at the dawn of morn; and they are so industrious that in two or three nights they destroy half the heads in a large field of barley; especially where the crop is thick and blown about by windy weather, as they then pass at once from head to head; whereas, when the crop is thin, and the weather calm, they are compelled to travel up and down the stems, and thereby prevented from committing such speedy havoc.

The ravages of the "cut-worm" have been much greater in some parts of the colony than in others. The grub has scarcely been seen at Willunga, while in the Mount Barker district it has destroyed crop after crop, and so disheartened the farmers that most of them have ceased to grow barley altogether. The "cut-worm" has only appeared since the Act of Council was passed in 1846, prohibiting the burning of indigenous grasses and stubble in summer; and the colonists aver that, were the

grass burnt as heretofore, the grub would be effectually destroyed. The country, however, is now too much settled for this dangerous operation to be permitted, as it is alarming and sometimes destructive.

Wheat harvest commences on the plains at the close of November or early in December, and in the higher districts about a month later. Many reap and thresh with the machine, which performs the operation with speed, with few hands, and at one-third the cost of reaping and threshing by hand. There are, however, two great objections to using the machine. First most of the drake, wild oats, and other weeds growing in the crop, are threshed out, by passing in with the grain between the teeth of the comb, from whence they fall on to the land, and thereby render the soil so "dirty," that frequently the following crop must of necessity be hay. Secondly, all the straw is left standing, and as straw is worthless in the colony it must, to save expense be cleared off by burning; and the performance of this opera-

tion is very properly prohibited until after the 1st of April. If, as frequently happens, rain set in before this period, the straw becomes too wet to burn, and the farmer is compelled to make the succeeding crop hay, by sowing a few grains, which with what fell in reaping, will produce a good cutting ; if inconvenient to harrow it, he turns the cattle and horses into the field, and they soon tread the seed in. These disadvantages attending machine reaping, although, perhaps, of trifling import to the wealthy agriculturist, render it imperative on the needy young settler to prefer hand reaping, which is performed with a sickle, as in this country ; except that each man both reaps and binds for himself.

Some farmers thresh on a floor in the open air, made of cow-dung, wood-ash, and earth, mixed with water, and well worked together to the consistency of stiff mortar, laid down, smoothed flat with a spade, and left to dry. When threshed, they winnow the corn, by standing on a stool, on a windy day, and

shaking the grain through a sieve held high in the air, when it falls on a cloth spread to receive it, and the chaff flies off. All, however, who have been established a few years, thresh in a barn made of wood slabs, or other similar material, and cure wheat for the market with almost as much care as the agriculturists of Britain; indeed, the young settler will act wisely by, in these matters, adhering as closely as possible to the following instructions, published in Adelaide by A. Murry Esq., proprietor of the South Australian newspaper, viz. :

“Wheat should be cut when fresh and ripe, and well winnowed, and taken dry in the farm-yard, and every means employed to prevent it from becoming heated. For these purposes, ‘binding and stooking’ should be attended to, by taking care that the sheaves are well bound, and that their bottoms are not unnecessarily occupied by grass and the upper part of wild flowers; for most of these being surcharged with moisture, tend greatly to spoil the grain

by their moisture entering into the stalks of the wheat, which by its subsequent movement, gives birth to mildew and other diseases, which will seriously affect the quality as well as the quantity of the wheat. It is advantageous to open up the bottoms of the heading sheaves before they are laid on the stook, for the purpose of allowing the grass and flower tops to fall out before the sheaves are laid on. After the grain has been properly winnowed, in a winnowing machine, it ought to be carefully removed and stacked in the barn-yard: the stacks should be built of a circular or octagonal form, on saddles, having a central vent throughout to cause a current of air to circulate through the middle of the stack. The vent, if possible, should be left open for a few days after the stack has been built, but the thatching and the heading ought to be put on as soon as possible after the building has been completed. Moreover, whenever there is an appearance of rain, the central vent should be closed by a good layer of straw, in order to

prevent the rain from reaching the heads of the sheaves. The importance of proper stacking is apparent from the fact, that wheat is found to keep the best in stacks; and also, that the farmer who wishes to dispose of his crop to advantage in South Australia, must generally keep it by him for four or five months." Just before harvest the barn should be swept clean, freed from old grain of every description, and washed within and without with a solution of quick-lime, which besides giving it an appearance of cleanliness, will destroy weevils and other vermin which subsequently devour and injure the grain.

Barley harvest commences about a fortnight prior to that of wheat. Barley, and in fact all grain except wheat, must be reaped by hand, as only the corn of wheat is sufficiently large, in proportion to the size of the straw, not to fall out between the teeth of the comb if reaped with the machine.

The potato can only be cultivated to advantage in cool and tolerably moist districts. In

moist situations, the ground is well broken by repeated ploughings and harrowings; after which planting drills are drawn about 3 feet apart, and in the bottom of the drills loose manure is spread in the proportion of 14 cart-loads per acre. The sets are then placed in the manure, and the whole ploughed in. Some farmers, after ploughing in the sets, give the ground a slight rolling to level the tops of the ridges. In situations where the soil is dry, the mode of operation is as follows—Plough the land only once, and pare off as thinly as possible the surface of every third, or as some prefer, every fourth furrow, with the plough, turning it down into the open furrow. Place the sets in the paring thus turned into the furrow, then come round in the same place with very deep ploughing, turn it over the sets, and afterwards, when convenient, break the surface with the hoe to prevent the drought from penetrating.

Maize, which in new South Wales is a most profitable crop, in almost all years, has in South Australia so repeatedly failed, that now this

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valuable product, so especially useful in fattening swine, is scarcely ever to be met with.

Rye, hops, and tobacco, are cultivated in the colony to a small extent; they succeed well, and before the lapse of many years will probably be largely grown.

The operations in the dairy are throughout the colony performed in a primeval, make-shift manner; indeed, many of the proprietors are ignorant of the most approved European methods of making butter and cheese; and much that is indifferent in quality is brought to market and readily sold, as the demand usually exceeds the supply. Samples of butter are, however, occasionally produced that equal in quality that of Britain; and although most of the cheese resembles in taste and appearance the better quality of those lately so extensively imported to this country from America, there is every reason to believe, that, when the cattle are as well tended, and the manipulations are performed as carefully

and judiciously as in this country, that both the colonial butter and cheese will be of unequalled excellence. Butter is in the greatest demand in winter: it must be kept in a cool cellar in summer, or the hot weather turns it to oil. Cheese is in request all the year round.

Few farmers feed their cows otherwise than by turning them out on the run. At the large dairies the cows are milked only once a day, early in the morning; after which the calves are allowed to accompany them on the run, where they remain in charge of a boy until evening, when they are all driven home: the calves housed, and the cows sent back to the run, there to remain until mustered on the following morning at milking-time. Under this system the cows give only about half the quantity of milk obtained from the well-tended cows of Britain; this the farmers deem a matter of little import, as most of them have extensive runs, the rental of which is a mere nominal sum, so that a deficiency in the supply of milk can always be made up at no increase of outlay, beyond the

cost of a few more cows. It appears probable that the climate influences the quantity of milk, for many of the small farmers and gardeners well feed and house their cows, and milk them regularly and carefully twice a day, morning and evening, and yet the milk, although excellent in quality, is invariably deficient in quantity.

Fowls, ducks, pigeons, geese, guinea-fowls, and turkeys, are plentiful throughout the rural districts and towns. They require little care or feeding, multiply much faster than in this country, and are so generally kept, that go where you will the crowing of cocks, the cooing of pigeons, and the quacking of ducks assail the ear.

CHAPTER VII.

The agricultural population—Progress to independence
—The German settlers—Economy of the farms—
The farm-houses—Life at the farms.

ALTHOUGH many of the farmers are capitalists, by far the great number are individuals who arrived in the colony with nothing but a pair of sinewy arms and a stout heart; and who by industry, frugality, and persevering energy, have attained their present state of affluence. Their colonial life, although not fraught with hardship or want, is that of incessant daily toil: husband, wife, and children, little and big, all work right earnestly, early and late; but, unlike the husbandmen in Europe,

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they labour from choice, and not necessity; they have become comparatively wealthy in a short time, and their success spurs them on to redoubled exertion. Indeed, the disposition of most of the labouring agriculturists leads them to as soon as possible acquire a small farm or garden of their own, as they dislike above all things depending on others for their daily bread, and to this may be attributed the extent of cultivation and cheapness of grain in South Australia. It was, as before stated, the rise and rapid increase of this class of small cultivators, that brought the price of grain down to 2s. 6d. per bushel in 1844; they being able to produce it at a much lower rate than the large landowners who rely solely on hired labour. For instance, a married man with a family, who possesses a team of bullocks, a dray, a plough, and a harrow, and about 40 acres of land, 2 or 3 cows and pigs, and a little poultry, is already independent; and will probably soon be rich, as his income will far exceed his outgoings. In about a month

or six weeks he may get 30 acres in crop, after which he can work for others. Those who have no bullocks of their own, will give him 10s. or 12s. per acre to plough their land, which he can do at the rate of nearly an acre per day. When ploughing is over, sheep-shearing commences. At this, if a good hand, he can earn £2 or £3 per week; or he may fill up any or all of his time by carting ore from the mines, which will bring in about £2 per week. While he is busying himself abroad, his wife, if an industrious woman, will be looking after the cows, pigs, and poultry, cultivating vegetables, making bread, butter, and candles, brewing ale, and attending to other matters for the family. The family will all be employed helping the mother; or if a boy or girl can for a time be dispensed with, some neighbour will be glad to give ample remuneration for their services. At harvest he and all the boys commence reaping, and after great exertion and laudable perseverance, generally succeed in getting the crop in

without further aid. This is a trying period, especially to the young settler, who while laboriously harvesting, is usually exposed to the burning rays of an Australian summer sun. The common plan is to reap mornings and evenings, and rest for three or four hours at mid-day. To hire assistance at this period is, to the small farmer, ruinous, as harvest-men are always scarce, and their terms very high; indeed, some large farmers, who bear a reputation for paying less liberally or punctually than others, have, not unfrequently, had a large field of wheat standing for a month after it was ripe, for want of hands to cut it.

The farmer who acts as above will, at the end of the year, have a pretty considerable balance in his favour. Presuming that he has earned by labouring for others during six months out of the twelve, £48; and that the produce of the 30 acres is 600 bushels, being an average of 20 bushels per acre, his account will stand somewhat as follows:

INCOME.		£.	s.	d.
600 bushels of wheat at 4s. 6d. per bushel		135	0	0
Six months' earnings	48	0	0
		<hr/>		
		183	0	0

EXPENSES.

The cows, pigs, and poultry have brought in enough to cover all household expenses, except clothing, and as he has no rent or taxes to pay, all the outgoings to deduct from the above will be as follows :

Seed wheat for 30 acres at $1\frac{1}{2}$				
bushels per acre, 45 bushels at				
4s. 6d. per bushel	10	2	6	
Wear and tear of dray, plough,				
and other tools	10	0	0	
Clothing for self and family for				
the year, say	15	0	0	
				<hr/>
				35 2 6
				<hr/>
				147 17 6

Thus, in one year, the farmer has realized upwards of £140, besides supplying himself and his family with an abundance of food, clothing, and other necessities. There, of course, will occasionally occur a few losses and crosses, such as cows straying, and getting impounded ; fowls or pigeons being stolen

by hawks; or the dray being upset, and costing a pound or two for repairs; but the sum realized is sufficient to cover all such incidentals, and leave a goodly surplus to boot.

It generally takes a poor labourer about three or four years to place himself in the above position; and those only succeed who are healthy, strong, industrious, persevering, and self-denying. In his progress to independence, each settler acts differently; some place their earnings in the savings' bank, and otherwise hoard it until it amounts to a sufficiency to commence farming on a liberal scale; others begin with an acre of garden, then get a cow, next a pig, and so on. I knew a person who had been a hosier in London, that commenced on his own account in the colony by purchasing a dray, six working bullocks and tackle, and two tarpaulins, of a man on the spree, who, to obtain liquor, sold the whole of them to him for £25—not half their worth. Six weeks after this transaction, a

person who had transgressed the law, and was about to fly from the colony incognito, sold him an 80 acre section, fenced in, with farm-house, implements, and 40 acres of wheat, and 6 acres of potatoes in crop for £75 ! Thus, for the sum of £100, he established himself as a respectable farmer. Such instances are of rare occurrence.

Many of the small farmers are Germans, who as a class make excellent colonists ; and if the British emigrant would follow their example, of steady, quiet, temperate habits, the prosperity of the colony would be greatly enhanced. The Germans in South Australia like not the idea of renting land, be it ever so cheap ; as, above all things, they desire a settled home, which they consider they only have when the land they occupy is their own freehold. Frequently a number of individuals club together, purchase several hundred acres, and form a village or small township ; in this manner about a dozen German villages have already been formed in the colony, the inhabit-

ants of which have little intercourse with their English neighbours, except to dispose of their produce, or purchase clothing or a few luxuries, as their necessities are nearly all produced or manufactured within the village. They are enduring and patient, and travel for miles to market with garden, dairy, and poultry-yard produce, done up in packs, which they carry on their backs. At night, or early in the morn, they may be seen, men and women, boys and girls, all tramping to Adelaide, bent half double with the weight of their packs. When they have disposed of their little store, instead of spending an hour or two in the public-house, they beg a drink of water, set down on the roadside, and pull from their pocket a huge lump of bread, which to save expense they bring with them. The repast ended, they trudge home, heeding no business but their own. They are bad agricultural servants: in movement slow, they spin out day-work, and if not well looked after, slight and meanly perform piece-work; and although

at home they live on poor, coarse food, when they go harvesting and sheep-shearing, they are the first to be dissatisfied with their rations. They are careless in the management of their own farms, the worst ploughmen in the colony, and perform their operations so slowly that, while two Englishmen will with ease manage a farm of 80 acres, it requires six Germans to perform the same task. Some of them, however, grow excellent crops, as whenever they can, they adopt spade husbandry. They also pay great attention to their cattle and poultry, which are generally kept in much better condition than those of the English.

The farm-houses are rough, but generally substantial and commodious; they are built of different materials, according to circumstances: if good stone or slate is handy, it is used, if not, and suitable clay exist in the neighbourhood, bricks are resorted to; and when none of these materials are to be had, the dwelling is built wholly of wood. These residences usually have no ceiling, nor upper

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floor, when you look up you see the roof; the walls are not plastered, painted, nor in any way decorated except those which occasionally get a lime-wash. The windows are sometimes canvas, sometimes glass, and the fire-places and chimneys are constructed as already described. For flooring, some have only earth, some are paved with stone, some with slate, a few with bricks, and a very few have wood floors. Water for domestic and other purposes is usually procured by sinking wells, and although occasionally pure and excellent, it is in general impregnated with minerals, hard and brackish to the taste, and more or less unwholesome.

Near the farm-house is the rough but strongly-built stock-yard, barn, stable, and other needful out-houses: these the needy farmer builds gradually, as his means afford. There are no English-looking green hedges in the colony, the farms are enclosed with rude, misshapen wood fences, the three rail "post and rail" is the most usual: it will cost from £70 to £80 to

inclose an 80 acre section with this fence. Where timber is plentiful, the "Kangaroo" fence is preferred before all others, as it keeps out sheep, pigs, and such like quadrupeds; it is formed of pieces of timber, large and small, all cut into equal lengths, either of 7 or 8 feet, and placed close and upright in a trench 2 feet deep, and tightly rammed; a rough batten being nailed along the top as a band. The "ditch and bank," and "dog and log" fence are occasionally met with. A simple but ingenious contrivance is frequently used for gate-hinges to the "post and rail" fence, viz.: the back upright of the gate is made long, so as to form a top and bottom spur, the top spur is pushed through a hole formed to receive it in the top rail of the fence, and the bottom spur is bevelled to a point and fitted into the conical bottom of a stout or wine-bottle, which is sunk into the ground neck downwards. This hinge never unships and well answers its purpose.

The farmers furnish their dwellings with few articles of domestic convenience. Only a few

wood-bottom chairs, an uncushioned, cedar sofa, one or two plain cedar tables, bedsteads of the plainest description, and sometimes a small looking-glass are to be met with in the dwellings of the more wealthy ; most of the poor farmers make their own furniture, which generally consists of a few rude forms and stools, a table, and bedstead ; and not unfrequently the only partition between the bed-room and sitting-room is one or two outstretched sheets. Their cooking utensils and mode of cooking are similar to that of the urban population of Victoria. They all live on plain but substantial dishes, and some keep a good stock of European wines, and British bottled stout and ale. They of course raise nearly all their own edibles, and in order to live on fresh meat, three or four of them will club together, and in turn each kill a sheep or bullock as the case may be.

The farmers, and indeed all persons who reside away from the towns, dress in the coarsest apparel. The usual male attire is a pair of common slop trowsers, a blue guernsey with a

leather belt to keep the trowsers up and the guernsey down, a flaunting red cotton handkerchief as a necktie, a broad-brimmed cabbage-tree hat, and a pair of heavy hobnail boots. Some wear a coarse regatta-shirt under the guernsey, and others, when circumstances permit, enjoy, in the hot weather, the luxury of nakedness, by dressing in only a shirt and a pair of boots.

The farmers' wives and daughters usually dress in cottons; their attire, although common and coarse, is neat, chaste, and tidy; they wear high dresses, and cotton bonnets made with a large curtain to keep the sun from freckling the neck; they, nevertheless, have their jewels, silks, &c., which they wear on festive occasions. Many of them are well-educated, devoid of affectation, thrifty, and industrious; indeed, I was struck in my travels in the colony with the beauty, the accomplished graces, the glowing health, the vivacity, and the open-heartedness of the fair sex in the rural districts; and I should be wanting in gratitude did I

not record their disinterested kindness, attention, and generous liberality to the wandering stranger.

Most of the farmers and others who dwell in the rural districts within the hundred of the counties, are, although parsimonious to a fault, altogether more moral, more straightforward and honourable in their business transactions, more kind and considerate to their neighbours, and generous and hospitable to strangers, than the mammon-worshipping Adeladians. Their chief sources of amusement are hunting, shooting, riding, and reading. Some possess their piano-forte, and enliven their homes with popular and even classical music, and occasionally dedicate an evening to Terpsichore, when the polka, mazurka, schottische, valse-à-deux-tems, and other popular dances are gone through with a grace and gusto that would astonish the fashionables of London. A few devote their leisure to scientific acquirements, and all who can read eagerly devour every tome of fiction

procurable, from the works of Fielding, Scott, and Dickens to the stories in Chambers' and Miss Cook's Journal.

There are no game-laws in Australia, the wild animals are considered common property, to which all have an equal right, and accordingly every settler hunts or shoots them whenever he pleases. The animals hunted are the dingo or native dog, the kangaroo, and the emu. The native dogs, which in size, shape, and cunning, resemble the English fox, are very numerous and troublesome. They prowl about in the night-time, and when pressed by hunger, will come almost to the door of the huts, and leap into the hurdles among a flock of sheep on one side of the fold, while the watchman is in his box on the other side. They frequently visit the farm-yard, where they feast on all that comes in their way, from the poultry to the calves or even the foals, killing some creatures, and biting off the ear or tail, and gnawing holes in the shoulders, sides and hind-quarters

of others, whose piteous cries are truly heart-rending.

The destroying the dingo is alike amusing and profitable to the farmers and the squatters; who hunt them with kangaroo dogs, a breed between a pure greyhound and a mastiff. At every homestead and station you find some of these dogs, and many settlers spend much time in riding out with them in search of the dingo; which, when discovered, is too cunning a creature to be easily taken. If three or four are together, on taking alarm, they will probably all fly off in opposite directions; whenever possible, they hide themselves in inaccessible mountain ravines, or holes in the banks of rivers; indeed, they generally make for the mountains or water-courses. Their scent, however, is so strong, that the dogs are rarely at fault. When hunting these detested *carnivoræ*, as soon as the dogs are fairly on the scent, the settlers give rein to their horses, and bound away over hill and plain, clearing dead trees, water-courses, and every obstruction in a

style that would astonish the most adventurous English steeple-chaser. Immediately the dogs catch the prey, they tear it limb from limb.

Kangaroos and emus are fast disappearing before their mortal enemy, the white man. They are perfectly harmless, feed only on grasses, and in their native wilds are graceful in their movements. Sometimes the kangaroo is killed for food, as his flesh is eatable, especially the tail, which makes a rich soup, equal to ox-tail; and a valuable medicinal oil is procured from the emu. These creatures, however, are rarely chased for their flesh or oil; sport, and sport only, is the object of nine-tenths of their cruel destroyers. The kangaroo, when hard pressed, will turn about, place his back to a tree, and vigorously fight for his life; he will seize and tightly grasp a dog in his fore-paws, and, with the hard long nail of his powerful hind foot, rip the animal to death. They have been known to drown dogs, and when hard pressed after a long chase, to attack man. I

know a person who accidentally came upon a kangaroo, to which he gave chase : after a long run the creature turned and fought desperately, killing one dog and disabling another. Finding his dogs overmatched, the bushman inconsiderately dismounted from his horse, when the kangaroo flew at him, severely wounded him with its powerful claws, then took him up, carried him to a pond hard by, and when I arrived was endeavouring to drown him. The poor fellow was insensible when rescued, and he kept his bed for six weeks afterwards. He will ever remember needlessly going out of his way to assail a harmless creature who never injured man or beast, but in defence of its own life.

Emus are troublesome to catch, for, although unable to fly, they are swift on foot, and run along the ground with flappers outstretched, and with the speed and the thumping sound of a race-horse. They are considered to afford the finest coursing in the world : it is seldom a man on horseback can run them down ; and, while

chasing them, many a horse has dropt dead under its rider.

Shooting is a very common amusement; every settler keeps his gun, and many of the boys are first-rate shots. The creatures to be shot are various, and for the most part numerous; native turkeys, wild ducks, bronze winged pigeons, wild geese, teal, and young parrots, are all excellent eating. The quadrupeds occasionally shot and eaten by the white man are the wombat, the bandicoot, and the kangaroo rats. It is a common amusement to form parties, and go out with guns by moonlight to shoot the opossum, a nocturnal *marsupial*, about the size of a rabbit. It exists in abundance, and beautiful, soft, warm rugs and cloaks are made of its skin; but its flesh is not eatable.

Before concluding this chapter, it may be well to mention, that both in South Australia and Victoria the estimated average yield per acre is: for wheat, 21 bushels; barley, 25; oats, 23; potato, 4 tons.

The expenses for cultivating 80 acres of wheat in South Australia are thus estimated:—

Ploughing, at 12s. per acre	.	.	.	£48	0	0
120 bushels of seed, at 4s. 6d.	.	.	.	27	0	0
Sowing the seed	.	.	.	1	8	0
Harrowing	.	.	.	4	16	0
Rolling	.	.	.	4	16	0
Reaping at 15s. per acre	.	.	.	60	0	0
Carrying to stacks	.	.	.	8	0	0
Unloading and stacking, 3 men, 8 days, at 5s. each per day	.	.	.	6	0	0
Thatching, 8 days at 5s.	.	.	.	2	0	0
Threshing, winnowing, and carrying to market, 10s. per bushel	.	.	.	69	0	0
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Thus the year's cost, for producing wheat, to the capitalist in South Australia, who performs all his operations by hired labour, is about 2s. 9d. per bushel; or, if reaped by the machine, about £50 may be deducted from the

above estimate, which reduces the cost to 2s. 2d. per bushel, without taking into consideration rent of land, interest on outlay for plant, wear and tare of the same, business losses, &c.

CHAPTER VIII.

The Gardening Population—Advice to Settlers—
Horticulture.

THERE are many market gardeners in the neighbourhood of Sydney, Melbourne, Adelaide, and the other leading Australian towns, and their number is fast increasing. The majority of these gardeners have too little capital to become agriculturalists; they possess, according to their means, from one to twenty or more acres of land, which they carefully cultivate, and they generally have a few milch cows, some pigs, and a little poultry. Some of them before emigrating were British or German peasants, others

were mechanics, shop-keepers, clerks, or persons of superior acquirements, or of more than ordinary mental endowment. I, in my travels, met with individuals attired in the coarsest apparel, labouring in their gardens, who, although leading a life almost as rude as a Russian serf's, had themselves painted oil and water-colour views of Australian scenery that would not disgrace the exhibitions of the Royal Academy. Few Australian settlers live more roughly than do these horticulturists. Some for a dwelling dig a hole in a mountain slope, which they plaster inside with clay, or other suitable materials; others live in "slab huts," built of rough logs of wood about eight or ten feet long, placed perpendicularly with one end in the ground, and covered with a thatched roof, the interstices between the logs being plastered up with clay. The walls are never completely wind and water tight, but this, in Australia, is of little consequence. Keep the roof sound, and no harm will come from the wind and rain that enters through the chinks in the walls. The

cost of building a slab hut ranges from £5 to £20, according to the size and strength of the building.

Gardening in Australia is a very profitable occupation for the man of small means, especially if he has an industrious wife, and a family of healthy boys, as they can attend to the garden and live stock, while he is working for the capitalist farmer, or engaged in carting auriferous earth at the mines, or some other profitable pursuit. All fruits, vegetables, and dairy and poultry-yard produce are, in the Australian capitals, dear, and of very easy sale. As one out of many instances of the money made in this way, I may mention that a colonial friend of mine has about two acres of land, chiefly reclaimed tea-tree swamps, situate a short distance from Melbourne, which is wholly cultivated by his wife and children, he himself being engaged in a more lucrative occupation. The produce of this land is driven to market weekly by one of the sons, and there sold by the wife for from £4 to £6, according

to the season of the year. The Australian horticulturists live on plain, but substantial food. Their domestic furniture and appliances are all of the coarse make-shift kind; this is not occasioned by poverty, for most of them could, if they chose, live in splendid houses filled with costly appointments: it simply proceeds from a desire to purchase a score of fruit trees, a cow or a pig, in preference to a stuffed chair, sofa, or polished table. In truth, Australia is, and for a period must remain, a land where the high refinements of civilization are trodden under foot in the eager scramble for wealth, lands and power. "We settle in the wilderness," exclaim the colonists, "to pioneer the way for a mighty nation; by toil and self-denial, so to smooth the road to future greatness, that our children's children may become the lords of the land, dwelling in palaces, surrounded by pomp, and possessing all the riches and power of the mightiest of the mighty in dear old England. Shall we then recline on soft sofas, in drawing-rooms decorated with gems of art; or waste

time at concerts, balls, or theatre? No! our mission, and we know it well, is to till the stubborn soil, stem the inundating torrent, make roads, build bridges, and dig the treasures from the earth's bowels, for by these, and these means only, can we obtain the vast lands, and countless flocks, for which our hearts so yearn."

But to return to the subject of horticulture. The young settler, in selecting a site for a garden, cannot use too much care and judgment in the choice of soil, situation, and aspect.

The following are the most important considerations: 1st. The settled districts for the purposes of horticulture may be divided into two regions—the higher and the lower. In the former, the apple, pear, plum, cherry, gooseberry, currant, rhubarb, raspberry, strawberry, quince, cape gooseberry, grape, filbert, walnut, mulberry, elder, and chesnut, all succeed; while, in the plains, the following fruits are cultivated with success: the apple, pear, plum, grape, almond, cherry, cape gooseberry, quince, peach, nectarine, mulberry, fig, medlar, rhubarb, olive,

loquat, orange, citron, lemon, guava, and chestnut. It has been asserted that the banana, the tamarind, and the pine-apple flourish in Australia generally. This is a mistake; for though a few sickly specimens of the first have, under favourable circumstances, been grown in the open air in Victoria, and the southern portion of New South Wales, the climate to the southward of Sydney is too variable, the heat, though at times sufficiently great, too transient, for the successful growth of most of the decidedly intertropical plants, otherwise than in an artificial atmosphere, made to resemble their native climate. All fruits that succeed in both the upper and the lower region come to perfection about six weeks earlier on the plains than on the mountain table-lands; but, on the other hand, when, in the height of summer, all vegetation has ceased on the plains, culinary vegetables will continue to grow in the mountains, and at this season of the year they sell for extravagant prices. 2ndly. The proximity of a market for your produce is indispensable.

3rdly. Avoid all low, swampy spots, where the subsoil is of a sour, cankering nature. Tea tree swamps are, however, admirably suited for summer vegetable crupping, and for raising seedlings and striking cuttings, and ought by all means to be chosen for such purposes.

4thly. The garden for general purposes should be elevated just above the level of pools or running streams, and, if possible, extend from thence up a gentle mountain slope. The ground should have a northern aspect, where fruit trees, natives of hot countries, may enjoy the full influence of the sun, and a southern aspect for the growth of summer crops and fruits from colder climes.

5thly. The most desirable form for the garden is a north and south mountain slope, with a creek running through the gully between the slopes, and on the sides of the creek an acre or so of tea-tree swamp. The elevation of the slopes should be about 2 feet in 10 feet, although a small plot with a southern aspect, and a much steeper slope, would be found useful for growing plants that require shade in the summer. 6thly. The

garden should be open to the early rays of the morning sun, or the plants covered with hoar frost in the winter may be killed by the sun, two or three hours after it has risen, suddenly darting its powerful rays upon them. 7thly. All violent and cold cutting winds should, as far as possible, be shut out from the garden. For this purpose, the ground should be sheltered from southerly and cold sea-breezes, by abrupt hills rising in the immediate vicinity, or by a thick belt of trees within about 30 yards of the fence: if neither of these exist in the required spot, plant the seed or young plants of the white gum there; they will soon leap up into stately trees. 8thly. The soil on the slopes should be an argillaceous loam, of either a deep reddish brown, or slaty black colour, so soft that a spade at one stroke can be inserted up to the hilt. This soil, on inspection, appears full of small thread-like fibrous roots, crumbles to pieces with the slightest pressure, and when rubbed between the fingers and thumb feels soft and greasy. It should exist to the depth

of 2 or 3 feet all over the garden. A black-looking loam, of middling texture, rather sandy, exists in many places, and is found an excellent soil for horticultural purposes. 9thly. The garden should be, if possible, of an oblong square shape, the greatest length being from east to west, as the north and south aspects are the most valuable. The reason a square is preferable to any other form is, that planting and sowing can then be easily and speedily accomplished, exact calculations can be made as to how much of this, or that, is required to sow or plant a square, and how long it will take a man to dig one, or all of the compartments.

Having selected the ground you should next erect a dwelling place. This, if your means are limited, you can do yourself in about a week, or aided by a carpenter in two or three days. The general plan is to run up one room, and when circumstances admit, add on others, or build a more substantial house altogether. The next important step is fencing; wood forms the cheapest fence, and the kangaroo, or the

post and rail with palings, are the most preferable. You can, yourself, put up the fence, as it is only necessary to fit the rails well into the mortises, place the posts, after they have been mortised, firmly into the ground, and nail the palings thereto in a secure manner. When the fence is up, and the garden cleared of all obstructions, the ground should be trenched to the depth of 18 inches or 2 feet, and if more all the better, as on well trenched ground, the crops are finer, and less liable to be effected by droughts, than on land that has only been broken up spade deep. The following is the colonial method of trenching:—Divide the ground into suitable squares, each measuring about 40 or 50 feet across, by means of a stretched line, and as you proceed notch the ground with a spade: this done, count the number of squares, and calculate which end of the last square, the finish will be made at; then mark off with the line and spade the first trench 4 feet in width, which must be dug to the depth required, and the soil excavated

conveyed to, and placed just below the spot where the finishing trench will have to be dug in the last square. Next mark off a second trench only 3 feet wide, and close to the one already cleared out: dig out the top spit, and place it in the bottom of the first excavation, and so proceed until all the soil to the required depth has been removed out of the second into the first trench, and the bottom, or under spit, been cast to the top. Continue on, in the same manner, trench after trench, until the first square is finished, then dig the second square as directed for the first, moving the soil from the opening at the commencement into the last open trench in the first square, and thus proceed with the others, observing to well pulverise the soil, and keep the surface level as the operation proceeds, until you come to the finishing trench in the last square, which must be filled with the earth already conveyed to the spot out of the first opening.

When the trenching is finished, the walks
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should be formed, to do which, having first decided on their width, and direction, you thus proceed :—Mark off, with a measuring rod, the exact spot in which to insert four pegs, so that two lines stretched on the pegs exactly indicate where the edging is to be placed on each side of the walk ; drive the pegs well into the ground, stretch the lines on them tightly, and insert small pegs at a distance of about 9 feet all along both the lines, to guide the necessary operation in forming the edging, which usually consists of either stones, bricks, or battens. If you use stones well bed them ; if bricks set them on edge one course wide, well bedded ; batten edging is laid down the same as wood edging in England, namely, stout pieces of quartering 18 inches long are pointed and driven into the ground, to which the battens are nailed on the side next the walk. When the edging is all laid down, excavate the soil out of the walk to the depth of 8 inches, then fill up the hollow so formed with small stones, brick-bats, or the like, to within 2 inches of

the intended level of the walk, on this spread some coarse gravel, beating it down with a heavy wood rammer, and cover the whole with a coat of the finest procurable binding gravel, smoothed even with a rake, and rounded off so that the middle is one or two inches higher than the sides, and the edging about two inches above the sides of the walk. Afterwards tread and beat it down, or if possible roll it a few times to harden the surface.

You next commence planting and sowing; and as many of these operations are performed the same in the Australian colonies as in Britain, it would be needless to recapitulate them here, as the emigrant who is not a professed gardener, can, for a trifle, procure a work on British horticulture, which he should take with him. I have already noticed where the colonial mode of cultivation of fruits and vegetables usually grown in Britain, differs from the methods practised in England, and the characteristics, and the

mode of cultivation, of such garden produce as succeeds in the colonies, but cannot be raised in the colder climate of the British Isles. These are at the present time successfully cultivated in the open air to the southward of the parallel of $33^{\circ} 52'$ S. lat. (Sydney). The times stated for sowing and other operations apply especially to gardens just within the hills, in the vicinity of Melbourne; in other districts operations commence a few days earlier, or later, according to circumstances. As a rule for every degree of latitude north of Melbourne, all other circumstances being alike, commence sowing four days earlier than at Melbourne; and for every degree of latitude south, four days later, and calculate every 500 feet of elevation as a degree of latitude.

Digging, hoeing, weeding, sowing, transplanting, sowing seeds, and other ordinary garden operations, are performed much the same as in Britain; but to insure success the

following instructions must be attended to :
1st. The ground must be manured to keep it in "good heart" at least once in a year, and with manure so thoroughly decomposed as to appear like black earth, otherwise the plants will be burnt up on the first approach of hot weather. Manure should be used more sparingly than in Britain ; apply it to the ground in autumn just before the rain sets in, so that it may become during the wet cold season well blended with the soil. The manure heap should be so placed that it can be easily saturated with water, as it must be frequently well watered in summer to hasten its decomposition. 2nd. Tender young plants must be protected by matting, bark, or other materials, from the sun's rays in summer, and cold cutting winds in winter. 3rd. The ground between recently removed plants, and young trees, should be covered in hot weather with a tolerable quantity of straw, litter, or what is better, large flattish stones, to lessen evaporation, and keep the earth cool. 4th. Never

water trees or plants during hot sunshine, as every leaf so watered becomes scalded, and many trees have been killed outright by water being applied to the base of their main stems when fully exposed to the rays of the sun.

The almond, a native of northern Africa, and other similar climes, is grown in Australia principally as stocks for peaches, nectarines, and apricots. It is usually propagated by seed. The shell-almond sold in the shops grows freely; plant it in May, in drills 3 inches below the surface, 6 inches apart, and 12 inches between each drill. In the following May take the plants up, shorten their tap-roots, and replant them in rows, with a space of 2 feet between each plant, and 3 feet between each row. When they are planted, head them down close to the ground; let but one shoot spring from each plant, and fasten it to a stake to insure its growing upright. At midsummer they will be fit for budding, and in the following

summer, for grafting. The almond is pruned the same as the peach, to which family it belongs.

The apple thrives best in the higher districts, where the aspect is southern. It attains perfection in any of the good loamy soils; and, if well irrigated in summer, the fruit, which ripens from December to April, is large in size, and rich in flavour. That pest, the American, or cotton blight, is as destructive to the apple in Australia, as in Britain. To eradicate it, the settlers pare off the infected places, and well scrub the parts with black oil mixed with a small quantity of sulphur.

The apricot, a native of China, and several parts of Europe, attains great perfection in Australia. It thrives best on a rich loam, 2 or 3 feet deep, on a dry bottom. It should be planted immediately after the fall of the leaf, which is generally about the end of May. The fruit ripens from November to February, according to situation.

The cherry succeeds best in a deep brown loam, in a situation sheltered from hot winds.

The cucumber is generally obtained from seed, and attains great perfection.

CHAPTER IX.

Mirage—Effect of the climate—Advice on the preservation of health.

THAT curious optical illusion, the mirage, may be occasionally witnessed on the plains of Australia. I first beheld this singular phenomenon one hot summer's morning: the sun was shining, the wind hushed, and the sky cloudless, when the plain I was journeying over appeared suddenly transformed into lakes of glistening silver. I rubbed my dazzled eyes, gazed again and again; stamped the ground, and peered at the sky, in order to be convinced that I was indeed on *terra firma*, so beautiful,

so strange, and so fairy-like, was the prospect. The idea of a mirage did not immediately cross my mind, as I had neither read nor heard that the phenomenon had been witnessed in the Australian colonies. Travellers in the East have recorded that mirages in those parts have all the appearance of water; those I witnessed in the Australian colonies had a somewhat different aspect; for though they reflected images as distinctly as water, they looked so hard and metallic, that no one would take them for that element. I could learn nothing satisfactory from the colonists as to when or under what circumstances these illusions take place. I myself have seen them only when the weather was hot and calm; they are probably induced by the mass of atmosphere on the plains remaining at rest, while the stratum in contact with the soil becomes heated by caloric disengaged from the parched earth. I remember, on one occasion, a breeze sprang up, when the silvery scene presented a series of undulations, and then suddenly vanished.

The effects of the climate of the Australian provinces on the health of civilized man, and more especially on that of British emigrants and their progeny, is a subject on which we have no well-founded data, but many conflicting statements. We must not depend on the returns of births, diseases, and deaths to elucidate the question, as they are too limited and inaccurate ; neither can we rely on the published laudatory testimonies of the interested established colonist, nor fully credit the groundless aspersions of the unfortunate emigrant, who, disappointed and dispirited, returns to his native land only to condemn Australia, and all and every one connected with it. These considerations induced me, when in Melbourne, to procure the opinions of the medical faculty, without leading them to suppose that such opinions would be published. As a patient, I consulted five gentlemen of high standing and extensive practice in the colony, and afterwards received advice from several of the lesser stars. The following is a general statement of their opinions :

1st. Melbourne is the churchyard of infants; but the mortality of children in the country districts is not so great as in Britain. 2ndly. Healthy natives of the British Isles, of both sexes, who arrive in Australia in the heyday of life, and settle there, may expect to die about ten years sooner than they would had they remained at home. 3rdly. Natives of Great Britain, either male or female, who have passed the meridian of life, will in all probability add ten or twenty years to their existence by going to either of the colonies, and ending their days there. 4thly. Individuals born in Australia, or taken there in infancy, arrive at maturity earlier than they would in England, especially the females; at fifteen a girl possesses all the charms and many of the graces of womanhood. 5thly. The climate usually cures dyspepsia, checks a tendency to consumption, increases nervous debility, and apparently develops the latent seeds of insanity. 6thly. During summer, ophthalmia, sore lips and mouths, and bilious and intermittent

fevers occur. The fevers, however, are neither so violent, so fatal, nor so frequent as in India, China, and other hot countries, where marsh miasma abounds. 7thly. The frequent and sudden changes of temperature, especially at the close of spring and commencement of autumn, often induce diarrhoea and dysentery ; indeed these maladies, although seldom fatal, are of common occurrence. 8thly. The climate exercises a curative effect on diseases of the kindeys, renders those of the skin more virulent than in Britain, occasionally induces derangement of the liver, is baneful to the scrofula, and beneficial to the gouty.

I may add, that considering their exposed life, the colonists suffer but little with coughs or colds at the chest. That I could elicit nothing satisfactory in regard to heart diseases, so conflicting were the evidence of cases, and the sentiments of the faculty thereon. That colds in the head, face-ache, and rheumatic pains, are not more common than in England ; and that with the exception of influenza, no

cases of pestilential epidemic have occurred in any of the provinces. Asiatic cholera, and plague, never have, and I trust never will, contaminate the pure air of Australia. That horrible affection *delirium tremens*, or the trembling madness, frequently attacks the colonial debauchee with a virulence unknown in the cooler climes of the British Isles, and very commonly terminates fatally. I believe its effects are much aggravated by the deleterious substances with which the publicans are known to adulterate their liquors. A few cases of *coup de soleil*, or sun stroke, occur every year during the hot weather; and sometimes a person dies from the bite of a poisonous serpent. Such cases are, however, comparatively rare, as the reptiles are by no means numerous, only a few are venomous, and they seldom act on the offensive. I may here remark, that all persons who would be greatly alarmed at the sight of snakes, or who could not brave the chance of being bitten by centipedes, tarantula spiders,

mosquitoes, swarms of fleas, or ants; and who fancy that they would be plagued to death if surrounded for six months in the year by ten times as many common house-flies as exist in the height of summer in this country, had better stay at home, as they have not the nerve to brave the difficulties of the venture, if these bugbears really terrify them.

Many settlers, on first arriving in Australia, find the clearness of the air, the dazzling brightness of daylight, and the daily round of unceasing sunshine, monotonous and disagreeable, while the heat produces more or less lassitude. These impressions and feelings are usually of short duration; the eye adapts itself to the clear bright air, and, after the lapse of a few months, the body becomes inured to the high temperature, and henceforth suffers more from cold than heat. It is, however, by no means advisable for those who enjoy buoyant health in the cold, moist winter and spring of England, and suffer lassitude in the height of summer, to settle in Australia; for the climate, although

highly salubrious in a general sense, is an extreme one—great dryness and heat being its characteristics—and as the hot winds turn green leaves yellow, so they shrivel up those individuals whose physical conformation only fits them to dwell in more temperate climes. Persons who are not scrofulous, who suffer from cold and moisture, and are most healthful in hot weather, have nothing to fear from the climate of Australia. I know instances of such individuals, after a few years' residence in the colonies, becoming quite robust, and much invigorated.

As before stated, it is an ascertained fact, that persons of a consumptive habit generally preserve their health by a residence in any of the Australian colonies. The climate, however, may only safely be recommended for instances as have simply a disposition to disease of the lungs, but on whom the enemy has as yet made no direct attack; for when once the disease has made a fatal breach on the lungs, the decay is much hastened by the

enervating influence of excessive heat, and death soon closes the scene.

Young settlers will act wisely by adhering to the following simple instructions. 1st. Pay great regard to temperance in all things. Wear flannel next the skin. Do not glut-tonise on meat because it is cheap; nor smoke tobacco all day long because your neighbour, the hardy old settler, whose nerves are as unimpressible as the diamond, does so. 2nd. Live on the plainest food, which should be well done, and well masticated; dine, if possible, on one, or at most, two dishes, and make but three meals in a day. Shun crude vegetables and fruits. Prefer that liquor—sparingly used—which is least apt to produce acidity, such as sherry wine, or weak brandy and water. Drink no colonial ale, nor water that has not been boiled; but be not afraid of black tea, which in moderation is virtually a stomachic. 3rd. Do not needlessly expose yourself to heat or night air. Avoid violent exertions. Sleep with the head high. If pos-

sible, take a gentle ride on horseback in the cool of the morning. Do not indulge in the frequent and indiscriminate use of medicines ; and above all, avoid spirits, and mercurial preparations. For irregularity, which should never be neglected, four grains of the compound colocynth pill, or two three-grain compound rhubarb pills, taken at bed-time, will usually be found a sufficient dose for an adult.

CHAPTER X.

The Cultivation of the Vine.

THE formation of a vineyard involves a considerable outlay of capital, and a patient waiting for the harvest. To insure success, experience as well as discrimination is needful; and it is only by carefully observing certain established rules, hereafter to be mentioned, that the young vine-grower can hope to raise fine and abundant fruit.

In regard to site, neither low swampy tracts, nor the tops of hills, should be chosen. A

situation between the two would be a happy medium. The vineyard should be on rising ground, facing the north, north-east, or east, and sheltered from the cold westerly winds by abrupt hills, or belts of trees. If these exist not, a row of quick-growing native timber should immediately be planted, at a distance from the vines sufficiently great to prevent the roots of the trees from running in among, and injuring the vines. This point should be attended to at the outset, as though the soil of the vineyard may be improved, the site cannot be changed; and if the vine is exposed to the cold south-westerly winds, which often succeed the hot, the sudden transition from heat to cold will shrivel the grapes, and render them worthless.

It is well known that the grape-vine possesses the property of imbibing by its roots the chemical qualities of the soil on which it grows, imparting thereby a flavour to the wine which no art can change, even were the principles of fermentation, and the subsequent manage-

ment of the vintage ever so well understood. Great care should, therefore, be taken to select a soil suitable to the growth and habits of the plant; and as the cultivation of the vine in Australia is too recently established to furnish from experience a correct data in regard to the varieties of soil best suited for the production of fine vines, and the perfect maturation of the grape, we cannot do better than look to old established vine-growing countries, and to the best reputed works on the subject for information.

Accordingly to Bosc (*Cours Complet d'Agriculture, &c.*, art. *Vigne*), the greater part of the vineyards of France are on a soil argil-calcareous, sometimes primitive, as those near Dijon, and sometimes secondary, as those at Bordeaux. Argillaceous gravel is the next in frequency, as near Nismes and Montpellier, and that which produces the *Vin de Grave* of Bordeaux. Both good and bad wines are produced from the débris of granites, amongst the former are the *Côtes Rôties* and *Hermitage*, on the Rhone.

The excellent wines of Anjou are made from vines growing amongst schistous rocks. Wines made from vines planted in chalky soils are weak, colourless, and do not keep well, as those of Champagne. Wines grown on the ashes discharged from volcanos are excellent, as those of Vesuvius and Etna. Soils surcharged with oxide of iron, red or yellow, are not less proper for making good wine. Retentive clays are the worst soils for the vine; the flowers are in great part abortive, the fruit, if it sets, does not ripen well, and the wine, if any can be made, is weak and flavourless.

Speechy observes: "The soil in which I have known the vine to prosper in the most superlative degree, without artificial aid, is a kind of rich, sandy loam, intermixed with beds of materials like jointed slate or stone, so very soft in its nature as almost to be capable of being crumbled between the fingers." Cyrus Redding, a well-informed writer on the vine, says: "Though wines of the Gironde in France, so much esteemed, are produced on the plain,

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the suffrages of that country are decidedly in favour of the hills, which must be understood with the qualification that they are not hills of great elevation, or, in such cases, that only to the lower portion of them the allusion is made. Argillaceous hills are not those in which the vine most delights. Calcareous hills are the best sites for plants producing dry wines, especially when their summits are well wooded, the southern side being open to the sun."

Speaking of Malaga, in Spain, he says: "Most of the vines flourish in about 18 inches of rich loam or mould, upon a blue shaly substratum, which scales up, and mingles with the mould, imparting to it a looseness and free quality allied to rocks or gravelly sites, found to be so congenial to the vine in other countries."

The vineyards in the wine countries of Douro, in Portugal, and where the port wine is made, "are on the slopes of schistous hills." Dr. Henderson, a talented writer on wines, says: "The soil on which the valuable wines of Burgundy are grown, consists, in general, of a light

black or red loam mixed with the débris of the calcareous rocks on which they repose." In the province of Andalusia in Spain, where the fine sherry wines are grown, "the soils of the district have been divided by Don Simon de Roxas Clemante, into four orders—viz., 1st. Albariza, which chiefly consists of carbonate of lime with a small admixture of silex and clay, and occasionally magnesia; 2nd. Barros, which is composed of quartzose-sand mixed with clay, and red or yellow ochre, and forms horizontal beds extending along the coast from the Guadalquiver as far as the Conil; 3rd. Arenas, or pure quartzose-sand; and 4th., Bugeo, which contains argillaceous loam, mixed with carbonate of lime, some quartzose-sand, and a large proportion of vegetable mould. Of these, the first named is the best and most productive."

Having chosen the site, and fenced in the land so as to prevent the ingress of all animals, you should next prepare the ground by trenching it to a depth of at least 2 feet: if more, all the better. If the soil is very poor, some well-

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rotted manure may be buried at the bottom of the trenches as the operation proceeds. It must, however, be remembered that manure, even when well decomposed, is apt to impart a bad flavour to the wine, and as such it should always be used with great circumspection. Many of the most celebrated vineyards are never manured.

The numerous varieties of the vine may be divided into three great families—the wine-grape, the table-grape, and the raisin-grape. The varieties grown in the provinces of Australia are very numerous, indeed too numerous, and many of the settlers have exercised so little discrimination in the selection of the sorts suited to the soil of their vineyards and other circumstances, that after the lapse of a few years, the grapes afforded only an execrable wine, were quite unfit for the table, and useless for making raisins. The sorts grown for the press in every wine country, may be considered as varieties of the black-cluster, and those sorts from which sweet wines are made as varieties of the mus-

cadine. In making the selection for wine, it will be well to confine the number to two or three good varieties, which ripen equally at the same time, as where a number of sorts which ripen at different periods are all grown together in the same vineyard, at the vintage both ripe and green grapes get conveyed to one press, and the result is a poor or bad wine. Good wine can only be made from equally and perfectly-matured grapes. Excellent wine has been made in the colonies of New South Wales and Victoria from the following varieties: for red wine, Scyras, Malbec, Carbenet, Grenache, Carignan, and the Pineau-gris; for white wine, La Folle, Aucarot, the Tokays, and the Ver-deilho.

The grapes from which the finest wines are made, are in general not the most profitable to grow: indeed, where the proprietor cannot afford to keep the wine for a few years to perfect its quality, or where the soil, aspect, &c., of the vineyard is not highly favourable for the growth of first-class wine grapes, it will be

prudent to choose those of the second, or third class, as usually they produce more abundantly, and are more certain, than those of the first class.

This branch of vine culture is, however, but very imperfectly understood, and only in its infancy. Indeed it would require the united experience of whole districts, for a long series of years, to satisfactorily prove which varieties of the grape are best suited to the soil and climate of Australia. Even in France, a variety of the vine from a particular vineyard celebrated for the production of fine wine, is often transplanted to a different locality judged to possess equal advantages as regards soil and exposure, equal care is bestowed on the culture of the plant, and in the making of the wine, and yet a wine of very inferior quality as compared with the original, is often the result. The very opposite of this has been obtained by transplanting vines from a vineyard producing wines of a very ordinary quality, to a spot where first class wine grapes have been grown. The cause of these

seeming anomalies has never been satisfactorily accounted for. It, however, is an established rule in vine culture, to grow only those varieties which are celebrated for their good qualities, for the production of wines either of the first, second, or third class.

The vineyards may be planted either with young plants or with cuttings. The plants chosen for second or third class wines should be hardy, of moderate vigorous growth, abundant bearers, and early ripe; the berries rather small, and close set, yielding a copious flow of pure juice, very rich and sweet, with a fine aromatic flavour, and slightly astringent taste. The cuttings should be chosen from fruitful plants, and be about 15 inches in length, and as thick as the middle finger; the buds should be plump, and the joints close, and if a small piece of the previous year's wood can be left attached all the better. Collect the cuttings at the pruning season, immediately they are detached from the mother plants; select only the best, cut them roughly into lengths, carry

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them immediately under cover, and if there are more sorts than one, keep them separate, and number, or tally them as such. Immediately before planting, dress them with a sharp pruning-knife; cut off all tendrils, claspers, and laterals, or side shoots, then make a smooth horizontal cut close under the lowest bud, from which the roots will strike out; or if there is a piece of old wood attached, leave about 2 inches of it: trim the upper ends so as to leave about 2 inches above the uppermost bud, for if you cut too near the bud from which is expected a shoot, it will be apt to kill it, as a portion of the bud next to the cut, from exposure to the sun and air, will be sure to die.

If the cuttings can be obtained as above, and the ground is in good order, *i. e.*, neither too wet nor too dry, but moderately moist, they should be planted at once in the vineyard, as by this method the plants progress more rapidly, and arrive sooner at a state of bearing, than if rooted plants were transplanted, although the

last method is not without its merits, and is extensively practised on the continent of Europe.

The distance at which the vines should be planted depends upon the quality of the soil, and the situation of the vineyard. Where the soil is of the first quality, and the situation good, a distance of 6 feet should be observed from row to row, and as the plant may be expected to grow luxuriantly, they should be quite 4 feet apart in the rows. In a soil of medium quality plant them 4 feet from row to row, and 3 feet apart in the rows, when it will require about 3,640 cuttings to plant an acre. But if the soil is poor, they ought to stand closer: 3 feet by 2 feet will not then be too close.

The distances having been determined, and the ground marked off, by means of a measuring rod, a line and pegs, in the ordinary way, then with a square-mouthed narrow-bladed spade square holes should be dug to the depth of the length of the cuttings, at the required spots, along the stretched line, when a boy

should take a bundle of cuttings and place them one by one in the holes, holding each one firmly by the hand to prevent it shifting, and with just one bud and an inch or so of the wood above the surface of the ground, while the operator proceeds with his spade to fill in the soil about the cutting, observing to break it fine. When the hole is half filled the soil should be pressed firmly round the cutting with the foot, after which the hole should be filled up without being again trodden. In the same manner proceed with the others until the first row is completed, when the line must be shifted to the next row, and so on, until the required number of rows are planted. Some careless and inexperienced persons plant their vine cuttings with a common dibble, a method much to be condemned, as many of the choicest and most valuable varieties so planted invariably fail. In France and other vine-growing countries an iron instrument is used, made in the form of the blade of a carving-knife, with a cross handle of wood securely

rivetted to it. With this the vine-planter makes an opening for the cutting by thrusting the instrument into the soil with both hands by means of the cross handle, the opening is then widened to admit the cutting by compressing the instrument against the sides of the slit; when drawn out, the cutting is inserted, some rich mould or compost is then strewn in, and settled about the cutting, by pouring in a little water; the instrument is again inserted about two inches from the cutting, and the soil compressed firmly against it. About 10 per cent of the cuttings may be expected to fail, and to supply the deficiency at the end of the season, a reserve must be made by planting a quantity in a nursery bed; it is even by many persons deemed a desirable mode to plant the entire vineyard with rooted plants, especially when cuttings cannot be procured sufficiently early in the season. This method, however, only succeeds well where great pains is taken in transplanting the plants.

For the nursery, a rich, moist, and level spot,

should, if possible, be chosen, and marked off into 4-feet beds, with 18-inch paths between, then a trench a foot wide and 18 inches deep, should be dug out at the end of the bed where you intend to commence planting, after which a second trench is to be dug out as before, and the soil made fine, and brought to the required level of the bed, which, the better to retain water during summer, should be 2 inches below the level of the paths. Next, with straight-edged batten, make a mark across the prepared soil at the place where the first row is to be planted, and with a spade cut a trench, even with the mark, in a sloping direction, and to about the depth to which the cuttings will be inserted, observing to compress the earth with the back of the spade simultaneously to inserting it, so as to keep the embankment of earth from falling down. The cuttings (their root ends having been previously steeped in water for a few hours) should then be placed in the row at 6 inches apart, leaving one bud and an inch or so below it above the soil.

In filling in the trench the soil should be finely pulverised, and pressed with the foot firmly about the cuttings, in order to fix them securely in their proper positions, and to insure the emission of rootlets by bringing the bottom ends into close contact with the soil. The trench should be filled from the soil of the succeeding one, regulating the width according to the distance from row to row, which should be about 15 inches. This done, proceed to the next row as directed for the first, and so on, until the whole is planted; after which spread some rough litter over the surface of the bed, 2 or 3 inches deep, so as to prevent rapid evaporation, and protect the cuttings from the extremes of heat and cold. During the first summer the plants should be plentifully watered at intervals of about a fortnight, and until they have made shoots 6 or 8 inches long, when the watering may be gradually left off, and no other care will be necessary than keeping the beds clear of weeds. When all the leaves have dropt off, the plants should be transplanted to

the spot where they are intended permanently to remain. In taking them up be careful not to cut or injure any of the roots ; the operation is best performed by opening a trench at the end of the bed where the last row was made, as deep as the soil will admit, and a little distance from the plants, when the spade should be inserted and thrust down behind the plants, shaking it backwards and forwards by means of the left hand, while the plant is grasped by the right hand just below the young wood, and pulled gently towards the opening, until the roots are all disengaged from the soil. In the same manner proceeding with the others, tying them up in bundles, and burying their roots until wanted for the final planting, which should be done speedily, as follows: Take up the cuttings one by one out of the trench and prune off the pieces of wood left last season above the terminable bud, close down to the one from which we shall suppose a shoot has grown ; or, if more than one has grown, it must be pruned down to the lowermost, and that shoot

cut down to the two lowermost buds. Cut off all roots that may have grown on the plant within 6 inches of the surface of the soil, and shorten all unnecessary, long, or straggling roots. Next dig holes at the required spots of sufficient depth and width to admit the plants, and allow the roots room to be spread out, making the soil fine in the bottom, and in the form of a mound, so that the roots may have a slight dip on all sides. After the holes have been dug, plant the vines as follows: Place the root-end of the plant in the centre of the mound, in the bottom of the hole, observing that it occupies the same depth as it did in the nursery bed: then with the hand, carefully spread out the roots straight, and at regular distances all round, and, with the spade, stem in some finely pulverized soil, while the plant is held in the hole in its proper position, and, while the soil is being filled in, another hand must gently shake the plant up and down in order to fix the roots. When the hole is half filled with soil, it should be gently trodden with the

foot, and afterwards be filled up level with the surface of the ground. Proceed with the others in the same manner until all are planted. After this, those cuttings planted in the vineyard where they are to remain, and not yet pruned, should be subjected to that operation in the same manner as directed for the plants taken out of the nursery bed, care being taken to remove the soil about them to the depth of about 6 inches, so as to get at the surface roots, which must be cut away, as it is a point of great importance in the early stage of the culture of the vine to get a quantity of deeply-seated roots, and every effort of the cultivator should be used to effect this. After pruning, stakes in sufficient number for all the vines should be procured of from 5 feet 6 inches, to 6 feet long, and in substance, averaging an inch and a half. They may be split square, of stringy bark, and sharpened at one end; then, with a light crowbar, make holes of just sufficient width to admit the stake, and rather less than the depth it is intended to be driven,

which should be done by means of a wooden mallet, finishing one row before the other is commenced with. This done, the ground should be dug over about 6 inches deep, in order to admit the winter rains, taking care in doing so not to injure the plants. The labours of the vineyard for the first year are now complete, and no more care will be necessary during the winter than keeping the ground free from weeds.

In the beginning of the second season, and when the buds have pushed two or three inches, the plants must all be gone carefully over, and the superfluous shoots rubbed off, leaving only the strongest and best placed to form the future main stem of the plant. When the shoots have attained about 8 inches in length, they should be fastened to the stakes, for which purpose a dry day should be chosen, as when the shoots are wet they are very brittle; nevertheless, great care is necessary, as they are apt to snap if handled roughly. The shoots will now grow rapidly, and as

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they advance, they must be carefully tied up until they attain the height of the stakes and a few inches longer, where they must be stopped, and all laterals and claspers cut away. In shortening the laterals, or small shoots, produced from the base of the leaf-stalk, the two lowermost buds must be left, as they have evidently very important functions to perform, by drawing off the superabundant sap from the bud always situated close to its base, and returning it in a more elaborated form, developing the latent principle in the bud designed in the following season to produce a shoot, leaves, and fruit. This rule should be always closely adhered to, not only in this, but in every succeeding season. Nothing further is required to be done except shortening all laterals when they get long and straggling, and keeping the ground free from weeds.

In the third season, and immediately after the vines have shed their leaves, they should be again pruned, by shortening the young wood

down to the three lowermost buds, and cutting off all laterals and claspers ; after which, those stakes which may be out of place, should be adjusted, and the stems fastened to them in an upright form. Attention to this in the first place, will insure a straight and upright stem at the period when the vine has attained its most perfect form. In the third season, if all has gone well, the growth of the vine will be very vigorous, and it will probably bear two or three bunches of grapes. Two shoots are to be retained this season, which, when of sufficient length, are to be fastened to the stakes, and the superfluous shoots rubbed off. The same routine of culture is to be observed this season as directed for the two first, and for every succeeding one

In the fourth year, at the pruning season, the strongest and most upright shoots are to be retained, to form the main stem of the plant, and which must be cut over at 15 inches from the surface from the ground, and all laterals, caspers, and other side shoots cut off.

This season the vine should assume its permanent form, and bear a good quantity of fruit, for which purpose four or five shoots must be allowed to grow. In the fifth season, three of these shoots are to be retained, radiating at regular distances from the main stem, each of which must be pruned to three buds, cutting off all else. The stakes may now be dispensed with, as each plant will be strong enough to support itself. In the growing season, three shoots are to be allowed to grow from each of the branches left at the pruning season, each of which may be expected to show two bunches of fruit, and are to be topped when they grow long and straggling. In summer-dressing the growing shoots and leaves of the season should be so disposed, as to afford the greatest possible amount of shade to the fruit from the direct rays of the sun, as grapes enjoying a screen of leaves not only ripen earlier than those exposed to the sun, but the berries will thereby be larger, and have a fine powdery bloom upon them—a certain sign of health.

In the sixth year at the pruning season, each of the branches will be furnished with three shoots, each of which must be pruned down to the lowermost branch of the last season's growth, which will form the bearing wood for the current year, and each should be shortened to four or five buds. In every succeeding season the same rules are to be observed, viz.: to get the greatest possible quantity of bearing wood upon the smallest quantity of old wood. This is the method of pruning dwarf standard vines in general practice in Australia, although other modes of pruning and training the vine are adopted, and it is perhaps of little moment which is pursued, as a good crop of fruit depends much more upon the soil and general good management, than any particular method of pruning or training.

The best varieties of the grape for raisins, are those producing large fleshy berries, as the Muscat of Alexandria, the Panse, or the Crystal. The cuttings should be planted as

directed for wine grapes, but at a distance of 6 feet between the rows, and 10 feet apart in the rows.

At the pruning season the vines are all to be headed down to two buds. As the growth of the vine will be very vigorous, it must be trained on an espalier-rail, which should be erected as follows:—procure posts 3 inches square, and 7 feet long, the bottom ends being charred, or coated over with coal-tar to prevent the wood underground from decaying, and the white ants from attacking it. The posts should stand 5 feet apart, the plant occupying the centre between them. They must be sunk into the ground to the depth of 2 feet, and the earth around firmly rammed, when, to secure them in their proper position, a plate of 2 by 3 quartering, should be nailed on their top ends. The rail should now have two or more good coats of paint, which will render it doubly durable. To this, one shoot is to be trained perpendicularly, until it reaches a few inches above the top of the rail, where it is to be stopped. At the

pruning in the third season, the upright shoots are to be cut off even with the top rail of the espalier, and eight branches, four on each side, are to be trained along the rails, until they reach the prescribed limits, and a foot more, where they are to be stopped. In the fourth season at the pruning, the vine will be furnished with eight horizontal branches, or four on each side. On the right side of the perpendicular stem, the first and third branches are to be cut out, leaving the bud situated nearest the upright or mother branch. On the left side, the second and fourth branches are to be similarly pruned. The vine will now have four branches, two on each side, all of which are to be shortened to 4 feet 6 inches long, and all laterals and tendrils cut off. In the growing season, all the shoots from the four bearing branches are to be trained and secured to laths placed from upright to upright, and stopped three eyes above the uppermost bunch of fruit. At the same time, a shoot will be advancing from each of the four branches which were cut

out at the pruning season, which must be secured to the rail, and trained to their full limits. In the fifth season, those branches that have borne fruit, are to be cut into the shoot closest to the upright stem, and that shoot trimmed to one eye, while the four shoots of the preceding summer's growth, are to be retained as bearers for the ensuing season, and so forth, cutting out and leaving every other branch alternately.

The best varieties of table grapes grown in Australia, are, among the coloured—the Black Hamburg, the Grisly, the Black Frontignacs, the Maroquine, and the Chaline. For white—the Tokay, the White Frontignac, La Folle, and the White Sweetwater.

Most of these succeed best if grown on an espalier-rail, and cultivated as directed for raisin-grapes. Some, however, as La Folle, may be trained the same as with wine grapes, *i. e.*, as dwarf standards.

CHAPTER XI.

New South Wales—First settlement at Sydney—The City—Australian Alps—Dearth of Labourers—The Counties, Mountains, and Rivers.

New South Wales, the seat of the eastern Australian gold-fields, and the oldest of the Australian colonies, occupies the eastern portion of the island-continent of Australia. As before observed, it was discovered and named by the justly celebrated Captain Cook, who spoke of it so favourably, that the British Legislature, then at a loss for a place to which criminals might be transported, determined to establish on its coast a penal settlement. Governor Phillip, with a

fleet of convicts, was accordingly dispatched to Botany Bay, the haven recommended by Captain Cook; but when they arrived there, they found it so ill-sheltered, and its shores so swampy, that they removed to Port Jackson, one of the finest harbours in the world, and on the shores of Sydney Cove, then abounding in kangaroos, founded the city of Sydney, January 26, 1788.

The early settlers endured great privations; and it was not until after 1794, that the colony began to advance. The first free emigrants, as they were termed, were conveyed thither in 1796, from which period the colony has, notwithstanding long protracted droughts, commercial depressions, and political misrule, rapidly advanced to its present great and thriving condition. It now is one of our great drains for surplus population, and it can scarcely be deemed a convict settlement, as in 1840, her Majesty in Council decreed, that, from and after the 1st of August in that year, the transportation of convicts thereto, should altogether cease.

Sydney, the capital, is a great bustling city, with a population of about 60,000. The busily thronged streets are wide and regular. The numerous shops are as extensive as many in Cheapside or Oxford Street, London.

The public buildings are fine stone or brick edifices. The churches exhibit architectural beauty of no mean order, and some have organs and peals of bells. The wharves, and the shipping accommodations remind one of the docks of London. The banks, the hospitals, the barracks, the mills, manufactories, steam-engines, distilleries, and breweries, are all extensive and substantial. Numerous omnibusses ply between the Star hotel and Paddington, and other places. Hackney-coaches, cabs, and cheap steam-boats, are very general, and the private carriages and splendid equipages seen daily in Hyde-park, the tastefully arranged shrubberies in the public gardens, and the well-classified collections in the public museum, all fully attest the advanced political and social condition of the community.

There are twelve newspapers and periodicals

published in Sydney; then there is a Sydney college, a grammar-school, a religious tract society, a Bible society, two assurance companies, a chamber of commerce, a gas company, several masonic lodges, and numerous other associations connected with religion, humanity, literature and science, which it would be needless to enumerate. The laws and courts of the colony, and the language, manners, and customs of the inhabitants of Sydney, are, with trifling exceptions, the same as in England. The coins, weights, and measures, are, in all the Australian colonies, the same as in Britain.

The general features of the country are moderately wooded, hilly table-lands, and expansive plains. One continuous chain of mountains bound the coast from Bass's Strait in the south, to York Peninsular in the north, which are known as the Blue Mountains in the vicinity of Sydney, as the Liverpool range in their northerly, and the Australian Alps in their southerly extensions. The most settled country lies between these ranges and the sea. Westward of

the ranges there are vast fertile plains, more or less occupied as pasture-land, and further to the west, beyond these, is the great Stony Desert, which has hitherto defied the efforts of the intrepid explorer to cross its gloomy confines.

There is in many parts of the country a deficiency of surface water. This, however, is not the case in the neighbourhood of the gold-fields, for there, not only is the surface-water abundant, but timber is also plentiful, and within a reasonable distance there are luxuriant fields of corn, and also thousands of sheep and cattle, which the squatters are only too glad to supply to the energetic diggers, on terms that would gladden the hearts of many a poor family in this country. Indeed, gold-finding in the fine climate of Eastern Australia, with a large civilized population within walking distance of the diggings, where order, honesty, and morality, prevail under the administration of English laws, and where all the necessities and many of the luxuries of life are easily obtainable, is far preferable to the same occupation in the wretched desert regions,

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the sultry, death-dealing atmosphere, or the still more fatal rains of the swamps and wastes of California, peopled as it is, besides, with the veriest dregs of society, who, girded with revolvers and bowie-knives, recognize no other than Lynch law. Neither should it be forgotten that the unfortunate, disappointed Californian gold-hunter, maddened by remorse, and by want and woe, too frequently dies a wretched and unmourned death, and is left like a beast, to rot on the ground, or to be devoured by creatures of prey, while on the contrary, the widely extended pursuits of wool-growing, stock-keeping, and agriculture, afford to the unsuccessful adventurers in the Australian El Dorado, an alternative easy, lucrative, and certain.

The pay of the common shepherd in the interior, who leads a lazy life, loitering and lounging behind the flocks from sun-rise to sun-down, has since the gold discoveries ranged from £25 to £40 per year, with board and lodging. Farm labourers are earning about the

same, and so much is labour in demand, that the squatters,* and the farmers, pounce upon weavers, clerks, broken-down gentlemen, or, in fact, any persons they can get.

The aborigines, or black fellows, as the colonists call them, unlike the warlike Red Indians of America, are a poor, simple, weak-minded, harmless race; almost the very lowest in the scale of humanity. Neither are there dangerous beasts to waylay the traveller, who indeed may safely roam at will over hill and plain, and at night, wrapped in a blanket or an opossum rug, repose with the earth for a couch, and the bright starry heavens for a canopy, without fear of harm from man or beast; the only pests being insects, and occasionally a snake, but many of these are harmless, as has been shown in a preceding chapter.

The boundaries of the colony have not been

* In Australia the term "squatted" is not applied, as in America, to a poor pioneer of civilization, but to a wealthy person, who leases large tracts of land from the crown, as runs for his numerous sheep or cattle.

defined, but the more settled portions have been divided into counties and districts, which may be thus briefly enumerated.

Cumberland County, on the east side of the dividing range in the middle district, is the most densely populated portion of the province. Besides Sydney, the capital, it contains the town of Paramatta, Windsor, Wilberforce, Richmond, Liverpool, Appin, Campbeltown, Penrith, Petersham, Pitt-town, Narellan, and numerous rising villages. The principal rivers are the Hawksbury, and the Nepean. The land throughout the country is flat or undulating, and near the sea-shore the soil is poor and barren. The most conspicuous eminence is Prospect Hill, situated near the centre of the county. Population, 81,114.

Camden County adjoins that of Cumberland, and contains Illawarra, or Five Islands, a region of surpassing beauty, and extraordinary fertility, situate between the ocean and the eastern base of a ridge of trap rock, running parallel to the coast and connected with Mitta-

gong range. This lovely valley averages five miles in breadth, by about sixty in length. Its inhabitants consist chiefly of small settlers who cultivate grain, culinary vegetables, fruits, &c., for the Sydney market. Berrima, the county town of Camden, is situate on the banks of the Berrima river, eighty miles from Sydney, and on table land 2,096 feet above the level of the sea. The climate is comparatively cool, and approximates much nearer to that of England than does the warmer regions of Sydney, and the low country towards the coast. The other towns are Kiama, Picton, Wilton, Camden and Murrumbidgee. The county is well watered. Among the numerous streams are the rivers Nepean, Wingecarribee, Berrima, Nattai, Avon, Kangaroo, Bargo, Cataract, and Minumurra; and the creeks Myrtle, Wollondoola, Yarringal, Broughton, Wattle, Werriberri, Black Bob, Broger's, and Mullet. Several of the eminences, the chief of which are Bonnum Peak, Keera, Bonnum, Kembla, Jellorr, Bullio, Pianeng, and Nundialla, command magnificent and extensive prospects.

Lakes: those of Illawarra and Camden are small but beautiful sheets of water, abounding with enchanting scenery.

Argyle County contains large undulating tracts which, though pleasing and park-like in appearance, are generally too poor in soil for agricultural purposes. The herbage, however, is highly nutritive, and the soil, being light and dry, is well suited for cattle pastures. It is watered by tributaries of the Hawksbury and Shoalhaven rivers, whose never-failing supplies fertilize the plains. The county is rich in gold and minerals. Goulburn, the county town, is distant one hundred and twenty miles from Sydney, and situate on the banks of the Wallondilly, in the centre of an agricultural and pastoral district, called Goulburn Plains. Lake Bathurst, an expansive sheet of water in this county, about one hundred and thirty-five miles southwest of Sydney, is from three to five miles in diameter, and reported to be the haunt of a creature resembling a seal, called "Devil-devil," by the aborigines, who deem it an evil spirit.

The other towns in Argyle are Marulan and Bungonia. Rivers: Wollondilly, Shovelhaven, Guinecor, Cookbundoon. Creeks: Curran, Lerida, Mulwarree Ponds, Kerrowang, Uringalla, Myrtle, Woorondooronbidge, Crisps, Bangalore, and Windellama. Eminences: Towrang, Mounts Macalister, Marulan, Hobbs, Wayto, and Fitton. Population, 5,465.

St. Vincent's County extends to the southward of Camden, and contains much wild, mountainous country, especially to the northward, which affords a rich field for mineralogical research, gold and minerals being abundant. To the southward there are some tracts where the soil is rich, and suited for either cultivation or pasture. It is well watered, and its maritime boundary is highly picturesque.

Towns: Braidwood, Broulee, Pianjare, Huskisson, Farnham, Marlow, Ulladulla, and Narriga. Rivers: Crookhaven, Moruya, Mongarloo, Clyde, Deuca, Macleay, and Shovelhaven. Creeks: Congola, Endrick, Yerringmong, Wandagandria, Pigeon-house, Jervis, Groobyer,

and Jembiacamben. Eminences : Pigeon-house, Currockbilly, Womballay, Jillamatong, and Budawang. Population, 2,572.

South, and south-west, of St. Vincent's County are the recently proclaimed counties of Dampier, Auckland, Beresford, Wellesley, Wallace, Cowley, and Buccleuch. Of these the most important is Auckland County, which contains Twofold Bay, a secure and commodious haven, forming a key to the famous squatting district known as the Maneero Plains, or Brisbane Downs, now divided into the several counties above-named. Boydtown, on the south shore of Twofold Bay, contains a pretty gothic church, ranges of commodious brick-built stores and houses, and a substantial jetty. A stone light house has been erected at the entrance of the bay, near which there is a whaling station, and boiling down and meat preserving establishments, &c. Government, however, has not permitted the light-house to be used, and the town itself is in not in the most flourishing condition. The other towns are Eden, and T.

bula. Rivers : Morumbal, Bemboka, Bomballa, Towaca, Towamba, and Bega. Eminences : Mount Imlay, and the Wanderer's Range. The Maneroo Downs is an undulating lightly timbered district, with a rich soil, well-suited for the growth of grain and culinary vegetables, and well-watered by the Shovelhaven, Deuna, Mitta-Mitta, Queanbeyan, Murrumbidgee, and Murray rivers. Gold and other minerals are in the Maneroo district abundant.

Murray County lies immediately to the west of St. Vincent, and contains extensive tracts of fertile land. In it is situated Lake George, a sheet of good, but slightly brackish water, about 17 miles in length, and 7 in breadth. Towns : Yass, Queanbeyan, Larbert, and Bungendore. Rivers : Yass, Molongo, and Jingery. Creeks : Gundaroo, Jerrabombera, Croonmier, Modbury, Morumbateman, Jinglelnony, Torallo, Batmaroo, and Majura. Elevations : Bywong, Mount Ainslie, the Twins, Gourock Pic, Balcome Hill, Cockatoo Hill, and One Tree Hill. Population, 3,886.

King County is bounded by Bathurst, Georgiana, Argyle, Murray, and Lachlan. It contains numerous fine grassy, thinly, wooded hills, and highly fertile vales, clear of timber. That portion of the Yass plains, or downs, within the limits of this county is a very favourite residence for squatters: indeed the country is covered with flocks and herds that thrive amazingly on the rich herbage of this favoured district. Gunning, the only town in the county, is 125 miles from Sydney, and nearly midway between Goulburn and Yass. Rivers: Lachlan, Yass, Narrawa, Wecho, Crookwell, and Boorowa. Creeks: Hovell's, Broman, Dearingullen, Bango, Cullaba, Gundaroo, Diamond, Pudman, Cartwright, and Lambton. Eminences: Mount Darling, Dixon, Chaton, Narrawa and Mundoonen. Population, 2,505.

Georgiana County is bounded by Westmoreland, Argyle, King and Bathurst; and contains much excellent grazing ground. The surface is varied, but mostly hilly, and cultivation could only be carried on successfully on the banks of

the water-courses. The available country is occupied as cattle pastures. That portion of the country bordering on Argyle contains gold. There are no towns; the chief place, a sort of scattered village, is Bingham. Rivers: The Abercrombie, Campbell, Crookwell, Bolong, and Isabella. Creeks: Tuena, Glengarry, Julong, Phills, Muligonnia, Pepper, Carrawa, Copperhaunia, Kangaloolah, Mulgowrie, Kangaroo, and Rocky Bridge. Eminences: Mount Lawson and Werong. Population, 1525.

Westmoreland County lies immediately to the north-west of Camden county. It is, perhaps, the most mountainous and the least fertile county of New South Wales. The extensive flat, called Emu plains, affords good grazing-ground, but the general character of the country is unfavourable to the agriculturist. One portion of the Blue Mountains in this county near Swashfield, is 4,000 feet above the level of the sea. Mobine, near the river Fish, is 3,275 feet high, and Mounts Murrum, and Collong, and Snake's Hill, are lofty peaks. The Emu

valley is an extensive swampy tract, 90 miles from Sydney on the road to Bathurst. The chief settlement is O'Connell Town, a small village near the Fish river, on O'Connell Plains, 115 miles from Sydney. Rivers: Wollondilly, Fish, Cox, Guinecor, Campbell and Kowmung. Creeks: Lacy, Antonio's, Tonatti, Jouriland, Lowther, Wiseman, Stoney, King, and Native Dog. Population, 1541.

Cook's county is bounded by Cumberland, Camden, Westmoreland, Roxburgh, and Hunter. It is occupied to a great extent by the Blue Mountain range, across which lies the fine road from Sydney to Bathurst, in the vicinity of the Ophir and the Turon gold-fields. Although containing much rocky soil, and wild mountain scenery, some of its valleys are celebrated for their beauty and fertility. The Emu plains, and the Vale of Clywd, are lovely spots; the latter is 2,496 feet above the sea, and runs along the foot of Mount York, an eminence 3,440 feet in height, and from whose summit the view is magnificent; stupendous rocky

masses, impenetrable mountain forests, and deep yawning chasms, meet the eye in every direction. The view from King's Table-land, 2,790 feet above the sea, is also highly imposing.

Towns: Hartley, the chief town, is on the west bank of the river Lett, 78 miles from Sydney. The other towns are Emu, Bowenfells, Wilberforce, Rydal, and Colo. Rivers: Nepean, Hawkesbury, Cox, Colo, Grose, Warragamba and Lett. Creeks: Wheeny, Cook, Mervo, Farmer, Billong, Walgan, Currency, Bowen and Wollinganby. Eminences, and their elevations: Mount Flay, 2,420 feet; Mount Tomah, 3,240 feet; Mount George, 3,620 feet. Population, 3,541.

Roxburgh county is bounded by Philip, Hunter, Cook, Westmoreland, Bathurst, and Wellington. Although very hilly, it has much rich pasture-land, which is occupied by squatters; and in the neighbourhood of the water-courses, which are numerous, there are fertile spots, yielding large crops of wheat and other

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grains. Its mountains and streams are rich in gold. Kelso, on the Macquarie river, 112 miles from Sydney, is the chief town, and Rydal the only other. Rivers : Macquarie, Turon, Fish, Cudgegong and Capertee. Creeks : Muroo, Merinda, Pyramule, Tyramil, Tyrambil, Cunningham's, Oakey, Warragunnie, Umbiella, Cook's, Tabraboucha, Roundswamp, Antonia's, Coolamigel, Solitary, Wimburndale, and Mallamurra. Eminences : Mounts Ovens, Marsden, Rankin, Clandulla, and Tayan Pic. Population, 2,538.

Bathurst County. This transalpine region is bounded by King Georgiana, Westmoreland, Roxburgh, Wellington, and Laehlan. It consists in general of broken table-land, forming extensive, and mostly slightly undulating downs, quite bare of timber. These downs are well watered by streams from the Blue Mountains, and generally occupied as grazing grounds. The fertile Bathurst plains is a table-land 2,100 feet above the sea, and about 19 miles in length, by from 5 to 8 miles in breadth.

Bathurst, from its elevation, possesses a climate considerably cooler than that of the eastern districts near the coast, and, consequently, is more genial to the British emigrant. English fruits grow there to perfection, but the same tropical productions which thrive so well in the vicinity of Sydney cannot be successfully raised. The county is rich in gold and copper minerals. Bathurst, the county town, a thriving settlement, with its churches, literary institutions, well built stores, inns, and private dwellings, promises, from its proximity to the Turon and Ophir gold-fields, to become, in a short time, a formidable rival to Sydney. It is situate on the south bank of the Macquarie river, 121 miles from Sydney, by the great western road, on a well chosen, but exposed site. Although celebrated for its produce of fine wood, grain, cheese, &c., and for its very excellent society, the county of Bathurst, prior to the gold discoveries, boasted of but three towns, Bathurst before mentioned, Orange, and Carcoar, a small township near the Belubulu river, and

144 miles from Sydney. Now, however, the local government have laid out the townships of Ophir, on the east bank of Summer Hill Creek, and, from being in the very heart of the gold-fields, it is fast becoming a place of importance. Population, 6,405.

Rivers: Macquarie, Campbell, Lachlan, Abercrombie, and Belubulu. Creeks: Summer Hill, Lewis Ponds, Frederick Valley, Swallam, Rocky Bridge, Peppers, Emu Swamp, Charlotte's Vale, Queen, Coombul, Coombing, Foster Vale, Muramer, Cadiangullong, Mundoraman Ponds, Grubbenburn, Muringulla, Milburn, Pannara, Wangola, and Limestone. Plains: Bathurst, Pretty, Dunn's, King's, and Warwick's. Eminences: Canobolds, Lewis Hill, and Three Brothers.

Wellington County, famous for the beautiful and fertile Wellington Valley, situated 238 miles from Sydney, at the junction of the Macquarie and Bell rivers, contains much picturesque hilly table-land, which is principally occupied as sheep pastures and cattle runs.

In this county there are caves in the limestone hills containing fossilized bones, supposed, by Professor Owen, to have belonged to gigantic kangaroos, now extinct. Gold is also abundant, the Turon, one of its rivers, being the chief seat of the New South Wales gold mines. Towns: Madgee, near the river Cudgegong; Neura; Tophala, a government township, laid out since the gold discovery on the Turon; Neuria, and the little hamlet or settlement at Wellington Valley. Rivers: The Macquarie, Bell, Cudgegong, Molong, and Turon.

Creeks: Cunningham's, Pyramul, Priambil, Nandillion Ponds, Weandra, Nubrigyon, Cur-rungaragh, Baduldarral, Cugaburgo, Moroo, Berragoon, Merinda, M'Donald, Piambong, and Warradugga. Eminences: Bocobel, Yammin, Boiga, and Corcalgong. Population, 609.

Bligh county lies to the north of Wellington County, and although hilly, is well watered, and contains a good amount of excellent soil, clothed with small "barley-grass," a herbage affording a rich feed for sheep. All the most available

tracts are occupied as sheep-walks. The towns are Ailsa, on the Krui river; and Montefiores and Dalkeith. The richest plains are Krui, Nandoura, Harrisons, and the northern portion of Wellington valley. Rivers: Goulburn, Macquarie, Cudgegong, Talbragar, Krui, and Erskine. Creeks: Wildra, Stoney, Moons, Derrinderry, Krui, Four Mile, Coolaburragundy, Teeree, Peter's, Cookabulgo, and Munmurra. Eminences: Mooa, Gobalion, Pandora's Pass, and East Bluff. Population, 1,004.

Phillip county lies to the south-east of that of Bligh, which it much resembles in its general features. It is about 53 miles in length, by 40 in breadth. The villages of Rytstone and Dabee are the chief settlements. Rivers: Cudgegong and Goulburn. Creeks: Lawson's, Wollar, Bylong, Barrigan, Moorlarben, Wilpingong, Cooyal, Widden, and Pipeclay. Eminences: Rankin's Peak, Cox's Crown, and Mount Penny. Population, 674.

Brisbain county joins the eastern extremity of Bligh, and consists of ranges of table-land,

with occasional plains and peaks. The most extensive plains are those of Gummum, Krui, and Bone. The highest peaks are Mount Tina-groo, Murulla, Tomarra, Tereil, and Oxley's Peak. Mount Wigen, known as the Burning Mountain, is in this county; the portion under combustion is 1500 feet above the sea. Towns: Murrurundi, on the river Page, Scone, St. Aubin's, Cassilis, Merriwa, Haydontown, and Invermein. Rivers: Hunter, Goulburn, Krui, Isis, Page, and Werrenul. Creeks: Dartbrook, Kingdon, Moon, Krui, Giant, Hall, Waybong, Gummum, Coulson's, and Bone. Population, 1,373.

Hunter county joins the most southern portion of Brisbain, and is separated from the sea by Northumberland county. It contains much wild mountainous country, in which gold and other minerals occur. The available tracts are occupied chiefly as cattle runs. The principal town is Jerry's Town, 122 miles from Sydney, on the Hunter river. Rivers: Hunter, Goulburn, Colo, Wollombi, and Macdonald.

Creeks : Putty, Parson's, King, Doyle, Greig, Webb's, Widdin, James, and Wollum. Eminences : Womba, 'Coricudgy, Nullo, and Monundilla. Population, 1,063.

Northumberland county, one of the finest in the colony, has a sea-board 61 miles in length, and extends inland to a distance of 50 miles. The uplands are fertile and picturesque ; and the valleys are famed for their richness and beauty. The Hunter river, a fine Australian water-course, affords means of internal water communication along the northern boundary of the county. In the vicinity, and on the alluvial flats of the river, there are numerous highly flourishing farms and estates, and a population of 15,200, busily occupied in pastoral, agricultural, and other colonial pursuits. Port Hunter, a commodious haven, forms the estuary of the Hunter river, near to which are the extensive coal measures worked by the Australian Agricultural Company, who possess a monopoly of the mines, and realise considerable and greatly increasing profits. Newcastle, about 80 miles

from Sydney, is the port town of the county, and the depôt from which the coal is shipped.

Maitland, a populous and highly flourishing town, 25 miles from Newcastle, on the Hunter river, at its junction with Wallis creek, is the seat of the county executive; and besides a spacious court-house, a large gaol, and several handsome churches and chapels, boasts its tobacco and soap manufacturies, tanneries, breweries, potteries, iron-foundries, and numerous substantial and well-built stores and private residences.

Much of the land in this county is highly fertile; and as the river Hunter and some of its tributaries are auriferous, it appears probable, that this sea-port district will rapidly increase in industry and wealth, especially as coal lies close to the port, and at the very doors of the manufacturers.

There are several lakes in this county. Lake Macquarie is the largest in the province, and surrounded by highly picturesque scenery. Brisbane Water, Wamberall, and Tuggerah Beach,

are also extensive sheets of water. The chief rivers are the Hawkesbury, which forms the southern boundary of the county, and disembogues at Broken Bay; and the Hunter. They are extensive, but like most Australian streams, subject to droughts and floodings. Besides the towns already mentioned, there are Morphet, Singleton, St. Albans, Gosford, Hexham, and Wollombi.

Durham county lies immediately to the north of Northumberland. It is hilly, but fertile, and well watered. Patrick Plains, a fine agricultural and squatting district, includes the middle portion of this county, and extends into the adjacent counties of Hunter and Northumberland. Patterson, the county town, is situated on the river of the same name, distant 130 miles from Sydney. The other towns are Seaham, Hinton, Camberwell, Gresford, Merton, Muswellbrook, Clarencetown, and Dungog. The latter, situated on a salubrious and picturesque site, is in a highly flourishing condition. Rivers: Hunter, Patterson, Allyn, Bonchell,

and Williams. Creeks: Stewartsbrook, Sandy, Fall, Fay, Muswell, Saltwater, Lamb Valley, West, Myall, Glendon, and Carron. Eminences: Mount M'Arthur, Royal, Drying, Tangarron, and Wollen. Population, 7,928.

Gloucester county intervenes between the sea and Durham, has a coast line upwards of 80 miles in length, and extends inland for a distance of 65 miles. It contains a good amount of land suitable for grazing and cultivation. Much of the extensive estate of the Australian Agricultural Company is situate in the southern portion of this county, in the neighbourhood of Port Stephen, a commodious harbour, 15 miles in length, and contracted near the centre to a mile in breadth. On the west shore of the harbour, and about 2 miles inland, the company have established the town of Carrington, adjacent to which is the residence of the superintendent, picturesquely situate on the crest of a grassy mound. Nearly all the finest land in this county is in possession of the company, whose grazing stations are

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extensive, and whose farms, gardens, and vineyards present gratifying proofs of well-bestowed capital and labour.

A singular phenomenon has lately been discovered in this county—viz., the front line of a range of hills near some lands belonging to the Church of England, strikingly resembling the ruins of a fortress. The masses of rent rock are dotted with balls, half fixed, and of the exact size of cannon-balls. They are easily displaced, leaving a socket, as if they had originally been plunged there by artillery. The balls are very heavy, of a sparkling granite, surrounded in the centre by a white flimsy circle, which it is found impossible to chip. Other mineralogical curiosities abound in this county. Towns: Raymond Terrace, Carrington, and the small villages of Gloucester and Stroud. Rivers: Manning, Karuah, Gloucester, Chichester, Williams, and Barrington. Creeks: M'Arthur's, Onall, Serpent, Myall, and Pilligerry. Lakes: Wallis and Myall. Eminences:

Mount Tallowah and Khanghat. Population, 3,149.

Macquarie county lies immediately to the northward of Gloucester, and has a sea-board of about 90 miles, extending from the embouchure of the Manning river (the southern boundary of the county) to Trial Bay, the sea-mouth of the river M'Leay, in $30^{\circ} 40'$ S. lat. The prevailing features of the county are undulating grassy land, free from inundations, and watered with numerous clear streams. Wherever cultivation has been carried on, the yield has been great; in some places averaging 40 bushels of 65 lbs. each to the acre. The grasses are long and rich, and vegetation generally is more luxuriant than in the southern portions of the province. Cabbage-palms and myrtles clothe the shores to the ocean's spray; lofty tees flourish close to the sea; and, further inland, moist tea-tree flats and rich sedgy hollows are common. The climate is warmer than that of Sydney; rains are more

frequent, hot winds seldom occur, and in summer the heat is mitigated by heavy thunder showers.

Port Macquarie, the mouth of the river Hastings, is an indifferent haven, 270 miles from Sydney, in $31^{\circ} 25'$ S. lat. At this harbour, on the south bank of the Hastings river, is a township named after the port, which was formerly a penal settlement, and which now maintains but a feeble existence. The other towns are Ballengarra, Hay, Maria Vale, and the thriving village of Kempsey. The principal agricultural farms are on the banks of the river Wilson, a tributary of the Hastings, and a never-failing stream. The known good grazing ground is fully occupied by squatters. Rivers: Hastings, Wilson, Manning, Ellenborough, Forbes, Brumo, and Maria. Creeks: Piper's, Pymbank, Cathie, Kindee, Limestone, Koolobungan, and Pappinburra. Lakes: Queen's, Innes, and many others of small extent. Eminences: Three Brothers, Comboyne, Cairncross, Mount Seaview, Colapotamba, and the Steeple, a sharp

spur on the summit of the Brakenhago range. Population, 1,637.

Several counties have been recently proclaimed to the northward and eastward of Murray county, but as I have no sufficient details of them, the country they embrace will be described generally. The map exhibits their position; their names are as follows: Hawes, Parry, Buckland, Pottinger, Inglis, Vernon, Sandon, Dudley, Gresham, Raleigh, Clarence, Richmond, Buller, Rous, Ward, Stanley, Churchill, Cavendish, Canning.

This northern country differs in everything from the dry sheep pastures of the south. The scenery is imposing; its characteristics are precipice, mountain, torrent, and lagoon, with luxuriant tropical vegetation. The encalpti, the cedar, casnarina, palms, fern trees, and wild figs attain an enormous size, while the coarse rank grasses have much the appearance of waving corn-fields. The climate is unpleasantly hot, and has all the features of a tropical one; the heat and moisture in the rainy season—which lasts about five

months—is injurious to the constitutions of the settlers, debilitating the system, and inducing ophthalmia and other organic derangements. It will therefore be well for emigrants who intend settling in this district—on reaching Australia—to prepare their constitutions for the great change of climate, by a few months sojourn at Sydney, or one of the more southern counties.

Northward of the before-named M'Leay river—which, with its numerous tributaries, extends far up through the mountains to the table-land of New England—there are several streams of great width and volume of water, whose long and wide reaches are navigable for steamers for a considerable distance inland.

The valley of the Nambucca, a deep but rather narrow river, is divided from the basin of the M'Leay by a range of thickly timbered, grassy hills, tier rising beyond tier in wild confusion. Northward of these, a ridge of conical-crested mountains, covered with luxuriant grass, and 2500 feet high, divides the river Bellenger, from its tributary, the Odalberree.

Further inland rises a gigantic range about 5000 feet high, which consists generally of a level table-land with steep spurs and perpendicular buttresses of 300 feet elevation.

In the valleys of the Bellenger there is much rich alluvial land, well suited for cultivation. The finest stream in these parts is the noble Clarence river, which rises in the same range of mountains with the M'Leay, and enters Shoal Bay in $29\frac{1}{2}$ S. lat. It is remarkable for its great breadth and its large volume of clear water, and although its mouth is obstructed by a sand-bar, it is navigable by steamers from Sydney for a distance of 90 miles or more. The country in the neighbourhood of this river, and its numerous feeders, is rich, grassy, tolerably level, and more extensive, and less mountainous than that of the M'Leay. It is, consequently, occupied by numerous squatters and settlers with their flocks and herds. The communication with the interior is less difficult than at Port Macquarie; wool-drays can descend with comparative ease from the Beardy Plains,

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and other rich districts on the table-land near the sources of the Clarence, to its navigable estuary.

Proceeding northward, after passing several secondary streams, we arrive at the Richmond, an expansive river, flowing through well-wooded grassy forests of the greatest fertility. Mangrove, serule, tea tree, and swamp oak thickets, cover the low flats near the mouth of the stream ; and higher up, the river is diversified by brush, abounding in cedar and pine, clumps of bangola palms, reedy swamps, small rich plains, and lightly-wooded forest flats of great richness.

Northward of the Richmond, the country continues equally good and fertile. Passing successively, but at long intervals, the Tweed, which flows through thickly-wooded mountain land ; and the Logan, a fine, clear stream, with rich alluvial flats near its embouchure, and beautiful grassy downs further inland ; we at length arrive at the Brisbane, a deep, expansive stream, rising in the mountainous counties of

Churchill and Cavendish, and which, after receiving the waters of numerous tributaries from the neighbouring uplands, flows through Stanley county, and enters the sea at Morton Bay, a beautiful harbour, well sheltered by the islands of Stradbroke and Morton, in $27^{\circ} 30'$ S. lat.

The scenery in the vicinity of this river is peculiarly beautiful, and the vegetation is most luxuriant; the land is equally adapted for cultivation or grazing; the timber is abundant, and fit for domestic uses or exportation. The bunya-bunya tree, and a species of pine called the "Morton Bay pine," are very general, and attain gigantic dimensions. There is a town, or rather settlement, with many substantial buildings, which were erected some years back by convict labour, on the shores of the river, about 25 miles from its mouth. Near the town the land is sterile, and the river banks are high and rocky; but this poor tract is of only small extent, and beyond it the land is of unsurpassed excellence. The wool, &c., from

Pul's Plains, Byron's Plains, the Darling Downs, and other far-out stations, are brought to this part for shipment, the descent being peculiarly easy and gradual.

The soil and climate of the Moreton Bay district are well suited to the cultivation of the sugar-cane, rice, cotton, indigo, arrow-root, tobacco, and other tropical products. Wheat, barley, and grain in general, yield luxuriant crops, but the vine and many other of the fruits and vegetables of the temperate zones will not succeed ; indeed, this portion of Australia can scarcely be deemed an eligible home for the British emigrant. Its climate is tropical, and therefore not adapted for European outdoor labour. Sharks, and shoals of sea-snakes, from the ocean, penetrate the rivers for several miles inland. The thickets and swamps abound in venomous and deadly serpents, the death-adder being particularly dreaded.

Mosquitoes, centipedes, ants, and most of the minor tortures which infest tropical countries are, much to the discomfort of the

bush traveller, here in myriads. The marsh-leech may be mentioned as a tormentor peculiar to these parts. This creature, in spite of all protection, frequently insinuates himself near the skin, and fills the shoes with blood. Then the Aborigines are more numerous and formidable than the tribes inhabiting the country further to the southward ; and the white population being thinly spread over the land, they have opportunities, which they eagerly embrace, of stealing sheep, and sometimes murdering a shepherd with impunity. Nevertheless, they frequently render services to the settlers at shearing, and harvest-time ; and also act as fishermen in catching the dudong, or yangan, as it is sometimes called, a huge animal of the whale tribe inhabiting the sea in this locality, and which, while affording a much prized food for the blacks, yields an abundance of oil of finer quality than sperm.

CHAPTER XII.

Squatting Districts—Features of the Country—Mountains, Rivers, and Creeks—Stock and Products.

IRRESPECTIVE of the foregoing counties, the colony has been laid out into what is called “commissioners,” or “squatting districts.” These territories are extensive, and under the immediate control of Government Commissioners, who authorize, by licence, the owners of sheep and cattle to depasture their flocks and herds over certain tracts. Most of the vast shipments of wool and tallow are from these extensive districts ; indeed, prior to the discovery of gold, they contained the staple wealth of

the colony, and as such, demand a brief notice in this place.

Commencing with the southern boundary of the province, we have the Manerro squatting districts. This important pasture tract has been mentioned in Auckland county. Its fertile plains lie at the foot of the Australian Alps. They are elevated to from 2000 to 3000 feet above the sea, and form a square of about 100 miles in extent. The climate is highly salubrious, but cold in winter. Stock: horses, 5000; cattle, 115,000; sheep, 400,000.

Murrumbidgee squatting district. This is one of the largest and finest grazing tracts in the colony. The plains are extensive, and the swelling uplands but thinly wooded, and well grassed. The Murray and the Murrumbidgee, the two largest rivers in the province, flow through, and form the northern, southern, and western boundaries of the districts, which is also watered by the Coodrabidga, the Tumut, Burnett's, and numerous other rivers and creeks.

The towns are Albury, advantageously placed on the Murray, as the post town of the district, and Gundegai, a village, 250 miles from Sydney, situate on one of the flats of the Murrumbidgee, and which is occasionally flooded to the depth of several feet by that river overflowing its banks. Stock: horses, 3000; cattle, 100,000; sheep, 400,000.

Lachlan district, is bounded on the south by the Murrumbidgee river, on the north and west by that of the Lachlan, and on the east by the counties of Buccleuch, Cowley, King, and Bathurst. This extensive district, although mountainous, contains much well-grassed, flat, and gently undulating grazing ground. Besides the rivers forming its boundary, it is watered by the Yars, the Boorowa, and numerous minor streams. The lakes are numerous: Quawingame, Cudjallogong, Campbell's, and Goorungutty, being the largest. Plains: Molle, Eurylene, Campbell's, &c. Eminences: Peel's, Taylor's, Goulburn, and Macquarie's ranges;

Mounts Gill, Stunard, Watts, Maud, &c. Stock: horses, 3500; cattle, 100,000; sheep, 250,000.

Wellington district is bounded on the south by the Lachlan river, on the east by the counties of Bathurst, Wellington, and Bligh, and on the north-east by the river Macquarie. It is a well-watered, fertile district, containing about 10,000,000 acres, and affording excellent sheep pasturage. Plains: Wellington, Baird, Gullerong, and Cannil. Eminences: Croker's, Harvey's, and New Year's ranges; and Mounts Culambals, Camerbergong, Gundobillong, Laidley, &c. Rivers: Lachlan, Macquarie, Bell, Bogan, Belabula, and numerous other creeks. Stock: horses, 1200; cattle, 60,000; sheep, 250,000.

Bligh district lies immediately to the north-west of Bligh county, and contains about 5,000,000 acres. It consists for the most part of well-watered, undulating country, affording sweet pasturage. Eminences: Arbuthnot's range.

Rivers : Macquarie, Erskine, Castlereagh, Morrison Ponds, &c. Stock : horses, 1000 ; cattle, 40,000 ; sheep, 140,000.

Liverpool Plains district joins that of Bligh, and contains about 10,000,000 acres. It is situate between two parallel ranges of mountains, and traversed at intervals by narrow belts of forest, which divide the plains into a series of narrow parallelograms. The numerous rivers and creeks by which this, the finest pastoral district in the province, is watered, run eastward and westward, and are the source of most of the streams to the northward of Sydney. The Australian Agricultural Company holds within this district an estate of 562,898 acres, which, together with their estate in Gloucester county, as previously stated, makes 1,000,000 acres. The lands of the company are, with trifling exceptions, highly fertile, well watered, and abounding with enchanting scenery. The company have expended large sums on roads, bridges, &c.; and their horses, sheep, and cattle are of the purest and most valued breeds.

Tamworth, the chief town of the district, is situate on the Peel river, in the company's estate, 254 miles from Sydney. Eminences: The great Liverpool range, the Arbuthnot range, Pandora's Pass, the Green Mountains, &c. Rivers: Peel, Parry, Darling, York, Nam-moy, and numerous others. Stock: horses, 4000; cattle, 220,000; sheep, 400,000.

M'Leay district lies on the coast, and stretches inland to the New England district. It is mountainous but well watered, and contains several thinly-wooded grassy hollows and undulating tracts. In some places the steep and rocky ranges are crowded with dense brushy scrub, and intersected by deep ravines and water gulleys. Rivers: M'Leay, Apstery, and numerous others. Stock: horses, 1000; cattle, 5000; sheep, 20,000.

New England district, between which and the sea intervene Raleigh and Dudley counties, is a well-watered upland, abounding in sweet grazing ground. It contains about 5,000,000 acres, the best being fully occupied by squat-

ters with their flocks and herds. Armadale, the chief town of the district, is a place of some considerable importance, with a weekly post to Sydney. Eminences: Mount Sea-view, Bullimbulla, Basaltic Rock, Ben Lomond, Mitchell, &c. Rivers: Hastings, M'Leay, Apsley, Barnard, Clarence, Croker, Anderson, Boyd, and various others. Stock: horses, 2000; cattle, 60,000; sheep, 600,000.

Clarence river district extends along the coast, from the northern boundary of the M'Leay district, to the ranges forming the basin of the Brisbane and the Logan on the south side of these rivers, and is bounded on the west by the New England district. It contains about 4,000,000 acres, which although mountainous, are well suited for pastoral purposes. The chief settlements are Casino, on the Richmond river; and Drayton, on the Clarence river. Eminences: Mounts Lindsay (5700 feet), Warning (3300 feet), Ballow, King, Coke, &c. Rivers: Cla-

rence, Boyd, Richmond, Tweed, Albert, and numerous others. Stock: horses, 2000; cattle, 40,000; sheep, 200,000.

Darling Downs district is very extensive, and lies immediately to the northward of New England. It contains a number of rich, grassy, well-watered plains, elevated above the reach of the floods which take place in the rainy seasons, and in every way well suited for cattle pastures. The most extensive of these are Darling Downs, Canning Downs, and Peel, Waterloo, and Cecil Plains. The eastern portion of this district is mountainous; but there is a communication through it by Cunningham's Gap, in Stanley county, to the sea-coast, at Moreton Bay. The mean elevation of the Darling Downs is 1800 to 2000 feet above the sea. This district is well watered by the Macintyre, Condamine, Glen, Boyne, Dumaresque, Myall, and other streams. The chief eminences are M'Leay, Herries, and Mount Parker ranges;

and Mounts Sturt, Michell, Logan, and Hay-peak. Stock: horses, 1000; cattle, 30,000; sheep, 400,000.

Moreton Bay district. The boundaries of this almost tropical district have not been defined, but it may be said to extend as far to the northward as 26° S. lat., and to lie for the most part between the ranges under the head of the Brisbane and the coast. It is watered by numerous streams, admirably adapted for the growth of tropical vegetable produce, and, considering its climate, well suited for cattle pastures. Amongst the luxuriant vegetation of this district, may be noticed the gigantic bunya-bunya tree, which, with a spreading umbrella-shaped head, over-towers the surrounding trees, and about once in three years produces a delicious fruit, resembling the pine-apple, which the aborigines travel hundreds of miles periodically to obtain. The chief harbour of the district is the excellent haven of Wide Bay. Stock: horses, 1000; cattle, 20,000; sheep, 250,000.

CHAPTER XIII.

Character of the Soil—Occupation of Land—Purchase of Freeholds—Runs.

THE soil in New South Wales varies considerably: it is in general scanty, and best suited for pastoral purposes. Nevertheless, there is much good land well adapted to agriculture, to gardens, and to vineyards. The soil in the best agricultural localities is a loam, either of a bright red or of a slaty black colour, and consists of calcareous, argillaceous, and much decomposed vegetable matter, with but little silica. In the mountain districts there is a

rich light argillaceous loam, of a nut-brown colour, where grain grows to perfection. For horticultural purposes there is a black alluvial soil, chiefly met with on the banks of rivers, or the bottoms of valleys, but it occasionally occurs on the tops of hills.

The production of the agricultural and horticultural lands, except in seasons of drought, is great. Wheat grows to perfection, and maize, grown chiefly as food for horses, yields 60 bushels to the acre, and is sown in October or November, and reaped in May or June, after which the land is sometimes sown with wheat, so as to obtain two crops in the year. Barley thrives well, but the climate is too hot for oats. In the cooler districts potatoes thrive exceedingly. Culinary vegetables of all kinds are produced luxuriantly, both in the warm and cool localities; and if we except the apple, currant, and gooseberry, fruits of every kind, both tropical and European, are produced to perfection and in great abundance. The orangeries are extensive, and there are numerous vineyards

that produce excellent light wines, which will probably be largely exported to the European market. Tobacco is largely grown in the neighbourhood of the Hunter river, to the northward of Sydney, and still further northward, in the Moreton Bay district; bananas, pine-apples, tamarinds, yams, arrow-root, cotton, the sugar-cane, and other tropical productions thrive well. Samples of the cotton sent to England have been pronounced by competent judges to far excel that from America, and all other places; and when social industry shall have recovered from the shock it has sustained by the gold discoveries, the growth of cotton for the European market will doubtless become a staple of north-eastern Australia. The management of the Australian agricultural farm, the dairy, the garden, and the vineyard, has been fully detailed in preceding chapters.

Land in the colony may be purchased either from the government, or from private individuals. In the present condition of the colony the latter would be far the best mode. Indeed,

so many persons are now abandoning their farms for the gold diggings, that farms in a state of comparatively high cultivation may be purchased at prices very far below their real worth. The emigrant who intends purchasing land of the crown should first inspect the maps of the colony, at the Surveyor-General's office, where every facility will be afforded him, and all information respecting the surveyed and unsurveyed lands may be readily obtained from the clerk of the office. He should then personally visit and examine the various localities and make his selection. If the land selected has been put up to auction previously, and not sold, he can secure it by paying to the public treasury the upset price of £1 per acre ; if otherwise, he must apply at the Surveyor-General's office, when the land, if not less than 30 acres, will be exposed for sale by public auction in from one to three months afterwards. Sometimes, however, from various circumstances, the survey of the land is either not completed or not reported in time

for the ensuing auction, when the sale is further delayed some two or three months.

The young settler, in making his selection of land, should, if possible, take the advice of some old colonist who resides near the spot as to its eligibility, as some spots that appear beautiful at one season of the year become swamps or lagoons at another, and in some places an abundant supply of good water can be obtained by sinking wells to the depth of a few feet, while in others the reverse is the case. Then it is well not to select land that a rich old colonist has "had his eye on," or you may be opposed at the sale, and be obliged either to buy a "dear bargain," or witness an unexpected rival become the purchaser of the wished-for section. It is advisable to select more than one spot, so that should one go at too high a price, you have another to fall back upon. When you have put up land for sale do not talk about it, for if it is a really valuable section, you by so doing raise up a host of competitors at the

auction. It is well not to bid for it yourself; employ a respectable land-agent, and no one will know but that he is bidding for one who is already lord of thousands of acres in the immediate vicinity of your section, and whom it would be useless to oppose.

Some of the rich landed proprietors let out farms on clearing and improving leases. Have nothing to do with them. Many a poor fellow has lost all his money and much labour in this way. Whatever quantity of land you cultivate, let it be your own; you will then be in good spirits, and exert yourself right earnestly to improve what you know is to descend to your children's children. Besides, by becoming a freeholder, you will probably quite extinguish that "love of birth-place," which, though a natural and laudable sentiment, should be banished from your breast the moment you set foot on your adopted land. Many colonists, by foolishly cherishing this sentiment, completely retard their own advancement.

Another mode of occupying land is to *squat*

—that is, lease a certain tract without the boundaries of the counties, for purposes purely pastoral, no attention being paid to agriculture, except to supply the immediate wants of the squatter. If you require a sheep or cattle pasture, you must, unless you buy one already discovered, search until you find one, and that too with all possible secrecy, or other settlers may be on your track, and perhaps succeed in obtaining the run you have, at much trouble and no little expense, discovered—for it is valuable property. The annually renewable licence of a run, although according to law not transferable, was formerly sold for from £100 to £300; and now that fourteen years' leases are granted to heirs-at-law, with compensations for improvements on the termination of the terms, such leases will doubtless sell for far greater sums. Indeed, the colonial lawyers have pronounced them to be almost as valuable as freeholds, and expressed an opinion that much of the land held under them will never again return to the Government.

When you go in search of a run, you must push beyond the furthest out-stations, and if possible take a friend with you who is used to bush travelling, and who has some knowledge of the district where you wish to have your station; and above all take a good supply of tobacco, for, vile weed though it be, it is the only circulating medium in the bush among both whites and blacks. There everybody smokes, male and female, old and young. Indeed, as you travel onward, you may glean much valuable information from the shepherds and stock-keepers, who, on the receipt of a few figs of tobacco, will give you a cordial reception, pronounce you "all the go," become extremely communicative, and provide you with the best accommodation their hut affords. If you have a few English periodicals, or newspapers of a late date, by all means take them with you; they will be much prized by the bushmen. On arriving at the furthest out-stations, stipulate to give a trifle to one of the shepherds or stockmen, on condition that he shall accompany you,

and endeavour to find you a good run. The following are the requisites : Well-watered grassy plains, or well-grassed open forest-land, neither swampy in the wet seasons, nor deficient of a good supply of water in the dry seasons ; sufficient timber growing on the spot for building and fencing, and, if possible, a distance from your nearest neighbour not exceeding seven or eight miles.

Immediately you have selected your run, apply to the Commissioners of the Crown Lands for a depasturing lease, describing in the application as nearly as possible the boundaries of your run, and the number of square miles you claim. This will secure your run for six months, and afterwards you must pay an annual license of £10 ; and, in addition, a half-yearly tax on all stock at your station, of a half-penny a-head for sheep, three halfpence for cattle, and three pence for horses. You must be careful not to lay out your run on too extensive a scale, as before you get your license, two persons—one appointed by the government,

and one nominated by yourself—will survey the run, and if they report it capable of supporting more than 4,000 sheep, or a proportionate number of cattle, then you will have to pay an increased annual sum of £2 10s. for every extra thousand the run is adjudged to support, though you have them not. The license will give you a right to the run and to the pre-emption of it should you desire it. It also confers the privilege during your occupancy, to purchase 160 acres of crown land at the upset price of £1 per acre, you paying the expenses of the survey, or the Government bearing the expense on your purchasing 320 acres.

CHAPTER XIV.

Sheep Farms—Life in the Bush—Boiling down of Stock—Religious Denominations—The Population—Revenue.

PREVIOUS to the gold discoveries, New South Wales was essentially a pastoral country. Henceforth, gold will, as a staple export, probably exceed that of wool ; but the pastoral interests, although for a period deranged, must, after the subsidence of the gold mania, again flourish and advance : therefore, the present is a favourable time to commence sheep-farming. The rush to the diggings has induced a scarcity of labour, and so depressed the value

of stock, that £500 well laid out in sheep or cattle, would in a few years return a fortune to the possessor. The profits on sheep-farming, average from 20 to 30 per cent. The occupation is precarious—and except that of gold digging, requires more skill, toil, attention and good luck, than any other colonial pursuit. The fleece of an Australian sheep averages in weight from $2\frac{1}{2}$ lbs. to 4 lbs., but much depends on the pasture. Sheep depastured on a soil too rich, or too sandy, have their teeth quickly worn away, and if not then consigned to the butcher, die of inanition. The large Leicestershire breed of sheep in Australia yield a clip of 6 lbs. or 7 lbs. of wool, but the finest wool is obtained from the small Saxony breed.

The wool growers' greatest enemies are the catarrah; the scab; the foot-rot, caused by marshy runs; the native dog, and bad servants. Cattle and horse breeding is a less speculative, and, therefore, in the aggregate, a more profitable occupation than that of sheep-farming. Pigs

and goats are also sources of considerable profit. I, however, have not the space to dilate on these matters, which indeed have already been graphically detailed in numerous works on the Australian colonies.

The wild life of a bushman presents few charms to tempt the cockney, dwelling amongst and enjoying the luxuries of civilization, to desert the quill and the ledger for the shepherd's crook. True, the wealthy squatter, who, unable to procure shepherds and stockmen to tend his fast increasing flocks and herds, and which, for want of a better paying beef and mutton market, are consigned by hundreds to the melting-pot, may, for the best of breeches-pocket reasons, indite flaming epistles to his friends in Britain, describing the Australian bush as a terrestrial paradise, where only pleasure and plenty hold their court. But let this same individual be, as is the case with his shepherd, confined to the bush for a twelve-month round, and, during that time, see scarcely a person but his chum, the hut-keeper ;

let him go the same eternal round, day after day, all weathers and seasons, live on nothing but damper—flour and water baked in wood embers—mutton, tea, and tobacco smoke, sleep at night in a hut alive with fleas, and neither wind nor water tight ; and withal, be tempted too often successfully, to spend all his earnings at the pot-house during his sojourns in town. Such individuals would probably then paint life in the bush in colours more true, but less glowing. Bush *cuisine* he might thus describe :

You may talk of the dishes of Paris renown,
Or for plenty through London may range,
If variety's pleasing, oh, leave either town,
And come to the bush for a change.

On Monday we've mutton, with damper and tea ;
On Tuesday, tea, damper and mutton,
Such dishes I'm certain all men must agree
Are fit for peer, peasant, or glutton.

On Wednesday we've damper, with mutton and tea ;
On Thursday tea, mutton and damper,
On Friday we've mutton, tea, damper, while we

With our flocks over hill and dale scamper. ®

Our Saturday feast may seem rather strange,
'Tis of damper with tea and fine mutton;
Now surely I've shown you that plenty of change
In the bush, is the friendly board put on.

But no, rest assured that another fine treat
Is ready for all men on one day,
For every bushman is sure that he'll meet
With the whole of the dishes on Sunday.

Nevertheless, bush life has its charms, especially to the hope-blighted citizen, the hater of etiquette, and the hollow conventionalisms of civilization, and the Mr. Skimpole, whose highest ambition is to live a free, independent, lazy life.

In the bush there are no roads, no villages, no shops, schools, nor churches; no ministers of the gospel; no law, except that of might, and very few women and children. The sabbath is rarely observed. Individuals are born and buried like heathens, without the aid and the consolation of doctors and parsons. The rude dwellings are akin to the huts of savages, and in fact it would be difficult to devise a more effectual mode of uncivilizing individuals than that of isolating them in the bush. To the needy Australian settler, the bush is a *dernier*

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ressort, like the workhouse to the poor in England, affording ready employment, a rough home, and a bellyfull of food. It is also notorious that a bush life, even if begun in the greatest poverty, will in a few years lead the industrious, persevering, self-denying settler to honourable independence. Many of the most wealthy colonists thus commenced their colonial career, and all who deem the isolation and privation more than counterbalanced by the enjoyment of health in a salubrious climate, and the certainty of fast-augmenting wealth, will experience but little hardship in the wild life of a bushman.

The boiling-down process, first resorted to about ten years back during a monetary panic, when nearly all the squatters were insolvent, and sheep fetched but one shilling a-head in Sydney, and sixpence a-head at the station, proved to the settlers that stock must always be worth the value of their tallow in England, minus the expenses of their freight and boiling down. The former charge is but trifling, and the latter, sixpence per head for sheep, and five

shillings per head for cattle, besides the value of the skin and the lean parts of the animal.

In some boiling-down establishments the skin and the lean parts of the animal are taken for the trouble of boiling down ; the rounds of beef are salted ; the legs of sheep are converted into mutton hams, and other lean portions of the carcasses are preserved in hermetically-sealed tin cases, to be used as fresh provisions at sea. Many thousands of sheep and cattle are now annually boiled down.

Their tallow, wool, skin, bones, &c., are exported to England ; herds of pigs are fed with the refuse, and the legs of mutton are sold from fourpence to sixpence each. The average weight of tallow from a sheep is 27 lbs., and by boiling the hoofs, pelt, horns, sinews, &c., 4 lbs. of excellent glue may be obtained. An ordinary four year old ox yields 184 lbs. of tallow, worth generally 70s., hide, horns, glue, soup, meat, and refuse, 14s. = 84s.

The following statistics, exhibits the present flourishing and advancing condition of the province.

The total population of New South Wales, not including Victoria, was, in 1846, 154,534 ; in 1851, 887,243. The number of married and single persons were as follows : In 1846, married, 51,057 ; single, 103,477. Of the single persons, 66,816 were males, and 36,661 females. In 1851 : married, 60,365 ; single, 126,888. Of the single persons, 76,227 were males, and 50,651 females. Hence it appears that since 1846, the number of single males has decreased, and that of single females increased, in the proportion of 45 in each 1,000 of the unmarried population. Although the convict system ceased in 1840, individuals who had passed their probation in Britain were forwarded till 1843. The convict element of the population is fast melting away. In 1846 it was 10,565 ; in 1851, 2,693. The number of hands has thus decreased in five years by 7,872 persons, and from 68 to 14 in each 1,000 of the population. In 1846 the number of convicts in private assignment was 928 ; in 1851 it was only 35, of whom 26 were males and 9 females.

The religious denominations in 1846 and in 1851 stand as follows :

	1846.	1851.	Increase per cent.
Church of England .	79,810	93,137	16·7
Church of Scotland .	16,053	18,156	13·0
Wesleyan Methodists .	6,338	10,008	57·9
Other Protestants . .	3,681	6,472	75·8
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Total Protestants	105,882	127,773	20·7
Roman Catholics . .	47,187	56,899	20·6
	<hr/>	<hr/>	<hr/>
Total Christians .	153,069	184,672	
			Increase in number.
Jews	969	979	10
Mahomedans and Pagans	135	852	717
Other persuasions . .	361	740	379
	<hr/>	<hr/>	<hr/>
Totals	154,534	187,243	

The number following the respective occupations in the whole colony in 1846 and 1851 are thus shown :

	1846.	1851.	Increase.
1. Commerce	8,027	12,423	4,396
2. Agriculture	12,316	11,898	decrease.
3. Shepherds	9,025	11,449	2,424

	1846.	1851.	Increase.
4. Stockmen	4,336	4,170	decrease.
5. Horticulture	813	930	117
6. Labourers	10,187	10,875	688
7. Mechanics	8,659	5,857	decrease.
8. Domestic Servants—			
Males	3,387	3,853	466
Females	4,982	6,594	1,612
9. Clerical	169	283	114
10. Legal	221	207	decrease.
11. Medical	281	326	45
12. Other educated	1,479	2,188	709
13. Alms-people	1,580	694	decrease.
14. All other	6,670	6,337	„
	<hr/>	<hr/>	<hr/>
Total occupied . .	72,132	78,084	5,952
Residue	82,402	109,159	26,757
	<hr/>	<hr/>	<hr/>
Total Population	154,534	187,243	32,709

Here are some anomalies which can only be accounted for by referring them to the emigration to California, or by questioning the accuracy of the returns. The number of persons engaged in agriculture appears to have declined by 418, that of stockmen by 166, that of mechanics by 2802, that of lawyers by 14, that of alms-houses by 886, that of persons whose occupations are not specified by 333. by Microsoft®

The centesimal rates of increase of the other occupations were about as follows: commerce, 55; shepherds, 27; horticulture, 14; labourers, 7; domestic servants—males, 14, females, 32; clerical 67; medical, 16; other educated persons, 48; women and children, classed as residue population, 32 per cent.

The proportions of professional men and domestic servants to all other persons in the total population were:

	1846.	1851.	England.
One clerical	to 913	661	795
One legal	to 698	903	1,089
One medical	to 549	573	884
One domestic servant to	18	17	15

It thus appears that the proportion in each of the above pursuits is considerably larger in New South Wales than in Britain.

The revenue in the years 1850—51, was as follows:

	1850.	1851.	Increase.
	£.	£.	£.
General Revenue . . .	248,613	277,793	29,180
Crown Revenue . . .	68,678	127,805	59,127
Totals . . .	£317,291	£405,598	£88,307

The increase on the general revenue was about 11 per cent.; on the Crown revenue, 86 per cent.; and on the total income about 27 per cent.

The principal heads of the general revenue for the year, with their respective amounts and rates of increase or decrease, were as under :

	1850. £.	1851. £.	Increase. £.	Per ct.
Customs	142,819	153,540	10,721	7·5
Colonial Spirits . .	2,850	7,210	4,360	53·0
Harbour Dues . .	5,543	6,124	581	10·5
Land Sales . . .	11,733	21,362	9,636	82·4
Licenses	29,563	30,083	520	1·8
Postage	13,646	18,252	4,606	33·7
Fines and Forfeitures	2,550	3,335	785	30·8
			Decrease.	
Rents	4,363	3,518	845	19·3
Assessment on Stock	16,716	16,478	238	1·4
Fees of Office . .	10,752	8,327	2,425	22·6

Thus, in all the principal sources of revenue, with the single exception of assessment on stock beyond the settled districts, there has been a considerable increase.

The progress of the Post-office revenue is highly gratifying, the receipts of 1851 exceeding those of 1850 by just one-third.

The Crown revenue for the year shows an increase under every head except that of rents of Government quarries and premises, which shows a decrease of £154.

The principal heads are :

	1850.	1851.	Increase.	Per ct.
	£.	£.	£.	
Land Sales . . .	21,654	42,205	20,551	94·9
Quit-Rents . . .	6,229	7,697	1,498	23·6
Occupation Licenses	23,753	36,806	2,053	8·6
Gold Licenses and				
Escort . . .	„	33,810	33,810	

Thus the revenue derived in the first year, or rather fraction of a year, from the New South Wales gold-fields was £33,810. This constitutes more than one-fourth of the entire Crown revenue of the year ; and is equal to one-half of the Crown revenue of 1850. And this revenue from gold, be it observed, is the produce of only about half a year.

The staple exports of the country are wool, tallow and gold. The export of wool in 1851, was £1,674,241. The tallow valued at £300,721, and the gold at about £500,000. The other principal articles of export are sperm, black, and cocoa-nut oil, preserved meat, salt meat, hides, leather, bones, horns, live stock to the neighbouring colonies, horses to India, timber, mimosa, bark, &c. The imports from Britain consumed in the colony, average in net value £7 per head for every colonist, old and young; and the exports from the colony to Great Britain amounts to an average of £8 10s. per head, and this is independent of the trade carried on chiefly in the articles tea, coffee, sugar, cigars, &c., with the East Indies, China, Singapore, and other islands of the Indian Archipelago.

CHAPTER XV.

Anticipations of gold—Discoveries by the author—Discoveries by Mr. Hargraves — The gold districts—Licenses.

THE existence of gold formations in the mountain ranges of Australia has been predicted by most of the scientific adventurers who have explored those regions. Indeed, years back, geologists who had never visited Australia, expressed their convictions that the ranges bounding the crest of New South Wales, collectively named the Australian Cordillera, must be auriferous; so remarkably similar are they in their geological formation, their latitu-

dinal direction, and general characteristics to the gold-bearing regions in Siberia, California, Borneo, and other places.

In 1839, the intrepid and scientific explorer, Count Sterzelecki endeavoured, but in vain, to awaken the attention of the colonists to the subject. For several years afterwards, a shepherd named M'Gregor, was in the habit of occasionally bringing pieces of gold to Sydney ; but he refused to state where he procured them. In 1841 the Rev. W. B. Clarke, of the parish of St. Leonard, near Sydney, a divine of eminent geological and scientific acquirements, found gold in the very basin of the Macquarie river, which he exhibited to the Government and other influential persons, and in the public journals pointed out the very regions where it was found ; but no one attempted to profit by the disclosures which he made, cautiously considering that the country was still a penal settlement. He subsequently communicated to the Geological Society his conviction that gold, copper, and lead, were in considerable abundance

in the schists and quartzites of the mountain chain. This intelligence awakened the attention of Sir Roderick Murchison to the subject, who announced to the Geographical Society in 1845, and afterwards to the Geological Society of Cornwall, that auriferous alluvia would probably be found in abundance at the base of the western flanks of the dividing ranges in eastern Australia, and strongly advised that the British Legislature should send out competent persons to explore those regions. Colonel Helmerson, who is well acquainted with the Ural gold districts, suggested the same idea at St. Petersburg.

In 1846, Sir T. Mitchell, while exploring the interior, procured several rich specimens of gold embedded in quartz, which he stated could be obtained in abundance; he, however, deemed it advisable not to notify the region. In 1849, a Mr. Smith, of Berrima, exhibited a lump of gold to the Colonial Secretary, and offered to name the locality of the aurifera on the receipt of a reward from the Government, but

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this was refused and Mr. Smith kept his secret.

In the papers relating to Crown lands, presented to Parliament at the commencement of the session of 1851, there is a dispatch from Sir Charles Fitzroy, the present Governor of New South Wales, to Earl Grey, containing the following passage:—"A specimen of gold, weighing about three ounces and a half, was lately exhibited to me. I have not been able to learn the precise locality where it was found, except that it is in the western side of the great dividing range in the Sydney, or Middle District." The specimen of gold here mentioned by Sir Charles Fitzroy, was not, as some have conjectured, one of those pieces sold in Sydney by the shepherd M'Gregor. I myself found it in the river Turon, near the junction with the Macquarie. I also procured scale gold, and copper ore, but I prosecuted no further search, as the Government and others who saw the specimens disregarded my statement of the

richness of the district; and some even pronounced me an enemy to the colony, for daring to discover the alluring metal.

This treatment, although unpleasant, was precisely such as I had expected to receive at the hands of the wealthy and the influential colonists, whose present interest it was to prevent the diversion of the already limited supply of labour to new objects, and to gold mining particularly, as they pondered on the possibility of the labourer deserting the flocks, the herds and the corn fields, and rushing to the diggings, immediately an El Dorado was proclaimed in New South Wales. But although they turned a deaf ear to the pleadings of science and enterprise, and sceptically pronounced the gold brought in by persons from the bush as jewels and watch cases, that had been hidden by thieves, and melted by bush fires, they could not check the progress of discovery.

Mr. F. Forbes, who, in 1850, died in California, published a pamphlet in Sydney, in 1849,

in which he affirmed, on scientific data, the existence of gold formations in Australia. About this period, several promising outcroppings of copper and lead were discovered; and the fact that the country was rich in minerals became so evident, that the colonial executive requested the home Government to send out an efficient geologist to examine the country, and accordingly the appointment was conferred on the eminent Mr. Stutchbury, formerly curator of the Bristol Museum, who departed for Sydney in September, 1850.

In January 1851, Mr. E. H. Hargraves, a poor but shrewd adventurer returned from California to Sydney, and although unsuccessful in his search for gold in the valley of the Sacramento, had earned there much valuable information, and was so struck by the great similarity between the geological structure and general aspect of the Californian gold districts, and the mountain regions in the vicinity of Bathurst, over which he had travelled sixteen years previously, that he determined without

delay, to prosecute a diligent search for the golden treasure. Availing himself of the previous scientific demonstrations and discoveries of the Rev. W. B. Clarke and others, he explored the locality where the precious metal was said to be most abundant, and ascertained the existence of gold sands in twelve different places, and satisfied himself of the richness of the district. Previous explorers, from lacking sufficient acumen, had not succeeded in benefiting either themselves or the colony by their golden discoveries; but Mr. Hargraves was too clever a tactitian to fail in so important an undertaking. After several personal interviews, he addressed the following letter to the Colonial Secretary:

“Sydney, April 3, 1851.

“ Sir,

“ With reference to my interviews with you regarding the discoveries recently made by me of the existence of *gold* on Crown lands in the interior of this country, and to your suggestion

that I should communicate to you in writing my views on the matter; I beg leave to state, that I embarked in the discovery at my own expense as a speculation, and as a means of bettering my fortune in the event of my search proving successful. I have succeeded beyond my expectations; and, so far, the great hardships, expenses, and exercise of my skill have been rewarded; and further, that within the period of my explorations (the last two months) I made very satisfactory discoveries of the existence of the precious metal in several of the localities on the Crown lands above referred to, and that my first discovery was made on the 12th February last.

“I have the honour to submit for the early consideration of the Government the following propositions, viz., that if it should please the Government to award to me, in the first instance, the sum of £500 as a compensation, I would point out the localities to any officer or officers they may appoint, and would

undertake to realize to the Government my representations, and would leave it to the generosity of the Government, after the importance of my discoveries and disclosures have been ascertained, to make me an additional reward commensurate with the benefit likely to accrue to the Government and the country.

“ Requesting the honour of an early answer. Address to me East Gosford, Brisbane Water.

“ I have, &c.,

(Signed) “ EDWARD HAMMOND HARGRAVES.”

To the foregoing letter the Colonial Secretary returned the following answer :

“ Colonial Secretary's Office,
April 15, 1851.

“ Sir,

“ In reply to your letter of the 3rd instant, I am directed by the Governor to inform you

that his Excellency cannot say more at present than that the remuneration for the discovery of gold on Crown lands referred to by you, must entirely depend on its nature and value when made known, and be left to the liberal consideration which the Government would be disposed to give it.

“ I have, &c.

(Signed) “ E. DEAS THORNTON.”

On the 30th of April, Mr. Hargraves addressed from Sydney the following letter to the Colonial Secretary :

“ Sir,

“ I have the honour to acknowledge the receipt of your letter of the 15th instant, and in reply, beg to say that I am quite satisfied to leave the remuneration for my discovery of gold on Crown lands to the liberal consideration of the Government. The following are the localities where it exists: viz., Lewis Ponds and Summerhill Creeks, Macquarie, and Turon Rivers,

in the districts of Bathurst and Wellington. I am now awaiting his Excellency's pleasure as to the mode of testing the value of my discovery.

"Please address, care of Samuel Park and Co., George Street.

"I have, &c.

(Signed) "EDWARD HAMMOND HARGRAVES."

Having received a guarantee of a government reward in the event of his discoveries proving valuable, Mr. Hargraves' next step was to persuade persons to commence mining operations. This he accomplished most successfully, by publicly announcing his discoveries in a lecture delivered in the town of Bathurst, on the 8th of May, and by establishing companies of miners, to whom he took upon himself to give a government authority to dig for the precious metal, as the following letters from Mr. C. H. Green, Commissioner of Crown lands to the Colonial Secretary, will show :

“ Bathurst, May 8, 1851.

“ Sir,

“ I have the honour to report that a Mr. Hargraves has been employing people to dig for gold in the Summer Hill Creek in this district, and they have succeeded in procuring several ounces. I have conceived it to be my duty to proceed to the spot, and serve notices to all the parties to refrain from further operations ; and in the meantime, I shall feel much obliged for further instructions on this particular point. The excitement consequent upon the report of gold having been found in considerable quantities is very great ; and I would beg to suggest that some stringent measures should be taken to prevent the labouring classes from leaving their employments to search on the Crown lands. And I would respectfully submit, that perhaps the procuring of a license to dig might in some measure restrain the shepherd and others from leaving their masters suddenly ; and I have every reason to believe that, should

should the report gain ground, this will be the case to an extent which will be attended with great losses to the stock-holders.

“ I have, &c.,

(Signed) “ CHAS. H. GREEN,

“ Commissioner of Crown Lands.

“ To the Honourable the
Colonial Secretary, Sydney.”

“ Bathurst, May 13, 1852.

“ Sir,

“ I have the honour to report, for the information of her Majesty’s Government, that in accordance with the intention expressed in my letter of the 8th instant, I proceeded to the spot where I had been informed the gold-diggers were at work. Upon my arrival at the mine, I found seven or eight persons at work there; and having given them notice to desist from their search, they produced a letter signed by Mr. Hargraves, purporting to authorise their working, and to prevent other parties from digging in the same neighbourhood. I did not see any authority from the Governor to Mr.

Hargraves, empowering him to grant such licenses to others. Having performed what I conceived to be my duty in the above matter, I must now request his Excellency's further orders as to my proceedings.

“The excitement at Bathurst among all classes is intense, and to complete it, a man has brought in a piece of gold valued at £31, and weighing 13 ounces. This specimen I have seen to-day. Hundreds are either gone, or preparing to start for the ‘diggings,’ where I fear the scenes once enacted in California will soon be acted over again. Parties are taking arms with them; and unless some very speedy measures are adopted, I fear they will set any regulations that may hereafter be promulgated at defiance, as up here we have not the means of enforcing them. It would, I imagine, be only through the assistance of the respectable portion of the diggers, aiding the executive, that any system of licenses ever could be carried out.

“I have, &c.,

“CHAS. H. GREEN,

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“Commissioner of Crown Lands.”

Pending these proceedings, Mr. Stutchbury, the colonial geologist, was despatched to Bathurst, to test the value and importance of the alleged gold discovery, and he confirmed, in the most full and satisfactory terms, the truth of Mr. Hargraves' statements.

A few hours after reaching Summer Hill Creeek, Mr. Stutchbury addressed the following letter to the Colonial Secretary :

“ Summerhill Creek, May 14, 1851.

“ Sir,

“ I have the honour to inform you (hastily, to save a post), that having been two or three hours at the gold diggings, I have seen sufficient to prove to me the existence of grain gold. Of course, I cannot say more at the present moment, but will write again by the next mail.

“ The number of people congregating requires from the authorities some prompt measures regarding power to work, &c. Immediate power should be given to some person to act temporarily.

“Mr. Hargraves will remain at Gengong until he hears further from you. If I may be allowed to suggest, I think, from Mr. H.’s experience, you could not at the first moment engage a better person to carry out your views until matured measures can be brought into operation.

“I have, &c.

(Signed) “ST. STUTCHBURY.”

Five days after writing the above, Mr. Stutchbury dispatched the subjoined to the Colonial Secretary.

“May 19, 1851.

“Sir,

“I have the honour to inform you, that since my last communication gold has been obtained in considerable quantity, many persons, with merely a tin dish, or other insufficient apparatus, having obtained 2 or 3 ounces per day.

“The number of persons engaged at work in

and about the diggings (that is, occupying about one mile of the creek), cannot be less than 400, of all classes.

“Report speaks of parties being at work in various places. I have no doubt of gold being found in greater or less quantities over a vast extent of country ; it is accumulating in the low grounds at the present time, as I have found it far above the flood-line of the creek in various places, proving it to originate in the ranges and to be washed down by the rains.

“I fear, unless something is done very quickly, that much confusion will arise in consequence of people setting up claims, &c. At present everything is quiet, many people are entirely without food, and stores are not to be got, although I hear that some are on the road, which I hope will speedily arrive.

“I shall consider it my duty to remain here until I hear the intention of the government respecting this very important business.

“Mr. Teely will be able to give you parti-

culars, as I understand he proceeds immediately to Sydney.

“ I have, &c.

(Signed) “ T. STUTCHBURY.

“ Excuse this being written in pencil, as there is no ink yet in this city of Ophir.”

Mr. Hargraves, having, by the successes of hundreds of diggers, fully demonstrated the great value of his discoveries, and established New South Wales as a gold mining colony, wrote to the Colonial Secretary as follows :

“ Wellington Inn, Gengong, May 18, 1851.

“ Sir,

“ I have the honour to inform you that I have placed myself at the disposal of Mr. Stutchbury, and pointed out the gold country. He has expressed himself perfectly satisfied of the correctness of my statements to the government. The effect of my appearance in the district has caused a little excitement among the people; and at this time, at the lowest

estimate, I should say 500 men are actively engaged in mining with success, some have made very large amounts. Anticipating the government would take immediate measures to regulate the mines, I have remained here at the suggestion of Mr. Stutchbury; and should the government require my services in carrying out their measures, I trust I shall be found, from my great experience in gold mining in California, fully equal to the task. Inferring such might be the case, I have not, either directly or indirectly, speculated in any way during the excitement; and now await his Excellency's pleasure as to the amount of compensation for my discovery, and further, if I shall be honoured with an appointment.

“ I have, &c.

(Signed) “ EDWARD HAMMOND HARGRAVES.”

On the 3rd of June, the New South Wales Government rewarded Mr. Hargraves with the sum of £500, for his valuable discoveries, and at the same time appointed him a Commis-
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sioner of Crown lands, at a yearly salary of £500, for the express purpose of continuing a search on behalf of the government, for further fields of employment for the gold diggers.

The arrival of considerable quantities of lump and grain gold, caused a great sensation in Sydney; and the report of Mr. Stutchbury, which reached Sydney on the 22nd of May, was so conclusive as to the extent and richness of the mines, that a proclamation, which had been prepared for some time, was on that day issued, declaring the right of the Crown to all precious metals, and prohibiting all persons from searching for, or carrying off the same, except under regulations to be shortly promulgated. This measure of the government increased the excitement, and hundreds flocked out of Sydney for the diggings, regardless of the toil, the privations, and the exposure to the comparatively inclement winter of the Bathurst regions.

Finding all efforts to check the search for gold vain, the government lost no time in

establishing regulations to preserve good order among the miners, and to render the auriferous soil a just source of income to the Crown lands' fund. Immediately after the issue of the proclamation claiming all precious metals as Crown property, the following announcement appeared in the "Official Gazette."

Licenses to Dig and Search for Gold.

"Colonial Secretary's Office, Sydney,

"May 23, 1851.

"With reference to the proclamation issued on the 22nd May instant, declaring the rights of the Crown in respect to gold found in its natural place of deposit within the territory of New South Wales, his Excellency the Governor, with the advice of the Executive Council, has been pleased to establish the following provisional regulations, under which licenses may be obtained to dig, search for, and remove the same.

"1. From and after the 1st day of June next, no person will be permitted to dig, search

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for, or remove gold, on, or from any land, whether public or private, without first taking and paying for a license in the form annexed.

“ 2. For the present, and pending further proofs of the extent of the gold field, the license fee has been fixed at 30s. per month, to be paid in advance; but it is to be understood that the rate is subject to future adjustment, as circumstances may render expedient.

“ 3. The licenses can be obtained on the spot from the Commissioner, who has been appointed by his Excellency the Governor to carry these regulations into effect, and who is authorized to receive the fee payable thereon.

“ 4. No person will be eligible to obtain a license or the renewal of a license unless he shall produce a certificate of discharge from his last service, or prove to the satisfaction of the Commissioner that he is not a person improperly absent from hired service.

“ 5. Rules adjusting the extent and position of land to be covered by each license, and for

demanded by me or any other person acting under the authority of the Government.

(Signed) "A. B. Commissioner."

Mr. Hardy, police magistrate at Paramatta, was nominated "Chief Crown Land Commissioner for the gold districts," with powers to receive the license fee, and to enrol a body of police, foot and mounted, to assist him in preserving order, enforcing the laws, and preventing unlicensed persons from digging.

CHAPTER XVI.

Quality of the Gold—Flight to the Diggings—Rise of Prices—Reaction—Discovery of the Turon Diggings and Lewis Hill—Matrix Gold—Bathurst—Ophir—Enormous piece of Gold.

THE natural dam, or bar, as it is called, just below the junction of the Lewis Ponds and Summer Hill Creek, was, at this period, the principal seat of the miners. These creeks take their rise in Frederick Valley, in Bathurst county, 153 miles from Sydney. The country around is wild and rocky, and too poor for cattle pastures. The gold here obtained (and it may be taken as a specimen of Australian gold generally) gave by the Royal Mint process

of dry assay: gold, 91.100; silver, 8.333; base metal, 0.567. The gold is, therefore, of 22 carats, value £3 17s. 10½*d.*, and contains 1 dwt. 16 grs. of fine silver to the ounce, value 5½*d.*; making the value of Australian gold £3 18s. 4*d.* per ounce.

By the 26th of May, so rapidly had people collected, that it was estimated that about 1000 were already at work on the Summer Hill and Lewis Ponds Creek, and lumps (or, as they are locally termed, nuggets) were found weighing from 1 oz. to 4 lbs. each. The continued influx of the golden treasure, produced in Sydney a Californian excitement. Merchants, lawyers, and tradesmen closed their offices and shops; and clerks, mechanics, labourers, and men of all classes and conditions, threw up their situations, and leaving their families behind, started for the diggings; and whole crews deserted from the ships in the harbour. The government found it expedient, for a period, to raise the clerks' salaries 25 per cent, and added 1s. per day to the pay of

constables and other subordinates. The merchants and tradesmen in Sydney, and many of the squatters and agriculturists also, raised the wages of their servants. Within a week, the Sydney prices of flour, tea, sugar, rice, tobacco, boots, and warm clothing, rose 25 per cent. Throughout the towns only, provisions and diggers' tools and clothing were saleable. All who could, and many who could not handle a spade or pick, were off, or preparing to be off to the gold mines; the roads to which were crowded with travellers, from magistrates, lawyers, and merchants, to labourers and runaway sailors, mixed up in one confused assemblage, with carriages, gigs, drays, carts, and wheelbarrows.

At this period it was much feared that the labourers would desert their vocations for gold hunting, and that all kinds of vice would be rife at the diggings: even the newspapers prognosticated the overthrow of order, and the reign of brute force. But these gloomy forebodings were speedily dispelled by the gleams of a bright future.

On the 2nd of June, Mr. Commissioner Hardy arrived at the mines, where he issued licenses, and collected fees without opposition, and turned away several sly grog sellers, and seized on their stock. Henceforth numerous police, mounted and foot, paraded the banks of the streams, where Mr. Hardy reported as much good order prevailed as in the capital itself. Few cases of drunkenness, and no Californian skirmishes occurred: only a few licensed publicans were permitted to sell fermented liquors; the Sabbath was carefully observed, the laws were respected; and the highly commendable morality and good conduct of the miners generally, strikingly contrasted with the savage violence, the Lynch law, and the brute force said to be dominant at California.

The gold fever which raged in May was of short continuance. Early in June the weather, which had been previously favourable to mining operations, set in cold and wet, flooding the creeks, filling the gold holes, and rendering the exposed life of the diggers, many of whom were

“camping” in, or under their drays, highly unpleasant and dangerous. Consequently, numbers were disheartened, and abandoning gold seeking in despair, returned to Sydney, giving so woful an account of their toils, privations, and want of success, that by the middle of June a complete reaction had taken place in the public mind. But although the first excitement seemed to have passed away in the colony itself, an emigration had set in from Melbourne, Adelaide, and Hobart Town ; and more than 800 souls arrived in the colony in the course of a month. Most of these, however, were so discouraged by the accounts afloat at this period, that they either returned by the earliest opportunity, or took to pastoral or agricultural employment. By the middle of July the want of labour was no longer felt, crews had ceased to desert from their vessels, and business generally was increasing. This calm, although but of short duration, was of service to the colony, and enabled all classes to perceive that anarchy and ruin was not to be dreaded on the one hand,

nor the accumulation of fortunes without toil and privation on the other. Prices of necessities fell to their former standard. The government, the merchants, and the employers generally, reduced the salaries and payments of their clerks and labourers; and to meet the probable exigencies of an increased population, the agriculturists sowed a much larger breadth of wheat than usual.

Towards the close of June, the rich Turon diggings were discovered. A shepherd in the employ of Mr. Richards, a wealthy squatter, residing in the vicinity of the river, picked up some gold near Lewis Hill; the discovery got noised abroad, and in the course of a few days hundreds were at work in the river's bed, which has proved the most productive, and surely remunerative, of the Eastern Australian gold fields. In Summer Hill Creek the gold is always large in the grain, often massive, seldom thin and scaly. At the Turon, with few exceptions, scale gold only occurs. Then the Summer Hill Creek has its barren strait reaches, and its profitable slopes,

whereas in the whole course of the Turon the production of gold appears to be as regular as wheat sown in a wheat field. No sloping elbows, no narrow long gorges. It does not matter where in the bed of the river or the impending banks you work, any steady working-man can with ease earn 10s. a day with the utmost regularity, and many make an average of twice or thrice this amount.

The success of the miners at the Turon and Summer Hill Creek induced the land and the stock holders in other districts, to offer rewards for the discovery of gold in the immediate neighbourhood of their property ; indeed, it was generally apprehended that all labour would be attracted to this new source of wealth, and that all property not in the vicinity of gold mines would become much depreciated in value. This example was followed by the neighbouring colonies ; and rewards, varying from several hundreds to £1000, were offered by private subscribers, and by the governments at Melbourne, Adelaide, and Hobart Town, for the discovery of new workable gold fields.

Sydney had scarcely recovered from the excitement which Mr. Hargraves' revelations raised in May, when it was again thrown into a state of ferment by a rumour that a lump of gold, whose weight far exceeded anything which the most sanguine had expected of the Australian diggings, had been found in the neighbourhood of the Turon mines. The Bathurst mail of the 15th of July brought a confirmation of the report, which was immediately published in the Sydney newspapers, whence the following account is extracted:—"Mr. Suttor, a few days previously, threw out a few misty hints about the possibility of a single individual digging £4000 worth of gold in one day, but no one believed him serious. It was thought that he was doing a little harmless puffing for his own district and the Turon diggings. On Saturday it began to be whispered about town that Dr. Kerr, Mr. Suttor's brother-in-law, had found a cwt. of gold. Some people believed it, but the townspeople generally treated the story as a piece of ridiculous exaggeration. The following day, however, set the matter at

rest. About two o'clock in the afternoon two greys in tandem, driven by W. H. Suttor, Esq., M.C., made their appearance at the bottom of William Street. In a few seconds they were pulled up opposite the 'Free Press' office, and the first indication of the astounding fact which met the view was two massive pieces of the precious metal, glittering in virgin purity, as they leaped from the rock.

"The townspeople were on the *qui vive*, and about 150 were collected around the gig to catch a glimpse of the wonder. The two pieces spoken of were freely handled amongst the assembled throng for some twenty minutes, and the vehicle was pointed out as containing a square box, the repository of the remainder of the cwt. of gold. It was then conveyed to the Union Bank of Australia. In the presence of the manager, David Kennedy, W. H. Suttor, and T. J. Hawkins, Esqs., and the fortunate proprietor, Dr. Kerr, the weighing commenced, Dr. Machattie officiating, and Mr. Farrand acting as clerk. The first two pieces already alluded to weighed severally 6 lbs. 4 oz.

1 dwt., and 6 lbs. 13 dwts., besides which were 16 drafts, of 5 lbs. 4 oz. each, making in all 102 lbs. 9 oz. 5 dwts. From Dr. Kerr we learned that he had retained upwards of 3lbs. as specimens, so that the total weight found would be 106 lbs., all disembowelled from the earth at one time.

“ The locality where the gold was found is the commencement of an undulating table-land, very fertile, and is contiguous to a never-failing supply of water in the Murroo creek. It is distant about 53 miles from Bathurst, 18 from Mudgee, 30 from Wellington, and 18 to the nearest point of the Macquarie river, and is within 8 miles of Dr. Kerr’s head station. The neighbouring country has been explored since the discovery, but, with the exception of dust, no further indications have been found.”

The gold was found by an educated Aboriginal, who, provided with a tomahawk, had amused himself by exploring the country adjacent to his employer’s land. His attention was called to the lucky spot by some glittering yellow substance upon the surface of a block

of quartz, forming an isolated heap, which was lying about 100 yards from a quartz vein, stretching up the ridge from the creek. He applied his tomahawk, and broke off a portion, when the splendid prize stood revealed to his sight. He instantly started off home, and disclosed his discovery to his master, who, as may be supposed, was on the ground quick as horseflesh would carry him. In a very short period the doctor carried away three blocks of quartz, containing 106 lbs. of pure gold. The largest of the blocks was about a foot in diameter, and weighed 75 lbs. gross. Out of this piece 60 lbs. of pure gold was taken. Before separation it was beautifully encased in quartz. The other two were something smaller. The whole of the masses were supposed to weigh upwards of 2 cwt.

Not being able to move it conveniently, Dr. Kerr broke the pieces into small fragments, and herein committed a very grand error. As specimens, they would have been invaluable; for, from the description given by him as

seen in their original state, the world has seen nothing like them yet. It is but justice to Dr. Kerr to add that he liberally rewarded the faithful Aboriginal for the discovery, and the frank surrender of the treasure.

It now became evident that gold existed in the matrix, which might pass into the hands of individuals much to the prejudice of the Crown. In this instance the finder of the 106 lbs. of gold was not even the holder of a license, and Dr. Kerr had removed the ore from Crown land, of which he was only the renter. The government authorities therefore took possession of the gold; but they returned it again on the receipt of a bond for a royalty of 10 per cent, and the following additional gold regulations were issued :

“Colonial Secretaries’ Office, Sydney,

“August 5, 1851.

“With reference to the proclamation of his Excellency the Governor-general, bearing date the 22nd day of May last, and to the notice

from this office of the 23rd of the same month, his Excellency directs it to be notified that the licenses issued in accordance therewith, to dig, search for, and remove gold from its natural place of deposit, will in future be limited in their operation to alluvial gold, whether consisting of dust, grain, scale, or lump gold; and will not extend to matrix gold combined with quartz, or any other rock remaining in its original bed or situation. Pending the establishment of regulations for the working of gold of this latter description, which will speedily be prepared and published, a royalty will be charged on the quantity obtained of 10 per cent, if found on Crown lands, and 5 per cent if on private lands. These rates will be computed on the actual produce valued at £3 4s. per oz., if procured by separation only, and £2 8s. per oz. if by amalgamation.

“2. Previously however to the working of any such matrix gold, notice must be given to, and a written permission obtained from, the Commissioner or Assistant-Commissioner

of the gold district, who will require such security, and make such arrangements for the protection of the public interests, as he may deem necessary. If the parties concerned fail to give the required notice or security, or to observe the arrangements prescribed by that officer, all such matrix gold, and also all alluvial gold of every kind, procured without due authority, will be seized as the property of the Crown, in whose possession soever it may be found ; and the persons offending will render themselves liable to be prosecuted for the offence.

“ 3. In conformity with the principle laid down in the provisional regulations of my last, above referred to, no person will be allowed to work matrix gold on private lands, except the proprietors thereof, or such persons as they may authorise in that behalf ; but in other respects, these regulations will be held to apply to all such private lands.

“ By his Excellency's command,

“ E. DEAS THOMSON.”

The road from Sydney to the Turon and the Summer Hill mines is more level and in much better condition than might be presumed from the nature of the country through which it passes. After journeying over level plains for a distance of 35 miles, we cross the Nepean river, when the road winds up the Blue Mountain range, through a wild romantic region.

Few houses are met with, but there are inns at suitable distances on the road-side. The first halting-place beyond the Nepean is "Wilson's Inn," at the 20 miles hollow, and hence the road winds up to King's Table-Land, when after journeying for several miles along the level summit of the range, which is of sandstone formation, we arrive at the "Weatherboard Hut," a small but commodious inn, and near which is the cataract of the "Regent's Glen," and a picturesque valley, surrounded by precipitous cliffs 1000 feet in height. The country around exhibits a scene of wild solitude and desolation, which is perhaps unequalled in the world. Masses of interminable forest, towering

spurs and ridges, and high rocky steeps, overhanging yawning chasms, winding gorges and ravines, deep, gloomy, and profound, meet the eye of the onward-bound traveller, in wild succession. About ten miles beyond the "Weather-board Hut," is the pretty village of Hartley; passing which, we reach the junction of the Mudjee Road, which is the most direct tract to the Turon. Five miles onward the road passes over Mount Lambert, a precipitous ridge; beyond this, we cross the Honeysuckle range, then enter Meadows Flats, where the formation changes from sandstone to granite, and after travelling over Green Swamp and the Macquarie Plains, arrive at the town of Bathurst, the central depôt of the diggings.

There is a tolerable road from Bathurst to Ophir, on the Summer Hill Creek, and also another to Sophala, the projected township on the Turon. Summer Hill Creek varies from about 50 to 80 yards in width. On its banks are sloping hills, which rise from the bed of the creek to the height of about 500 feet; this,

in a commercial sense, is a great disadvantage to the district, as, until a road is cut on the hill-sides, horses and vehicles cannot approach the diggings.

The Turon is, in this respect, better situated, as between its bed and the Lewis Hill range there is a tract of level country sufficiently wide for all commercial purposes, and which, near the junction with the Macquarie, forms excellent natural wharves.

The scenery of the Turon is more ample and imposing than that of Ophir; the hills, which in many places are well-wooded, rise to the height of about 1000 feet, with broad sloping valleys between. The Turon, and indeed all the water-courses of Australia, are subject to very irregular supplies of water. In the rainy season (winter) they frequently become rushing, roaring torrents, and in summer they cease to flow, when the secondary streams become dry as high roads, and the Turon, the Summer Hill Creek, and other similar rivers only contain water supplied, as is supposed, by springs, in

deep holes or ill-shaped wells that occur in irregular succession in their beds. The detritus at the bottom of these ponds, or water-holes, as the colonists call them, has proved to be very rich in the precious metal ; it, however, lies too deep to be procured in the ordinary way by manual labour. To raise it, suitable dredging-machines would be required, and with these, and large amalgamators worked by steam, a company or a partnership of wealthy individuals might count on enormous returns.

As an additional facility of transit, and security to the public, the local authorities established mails with an armed escort, which, every other day, Sundays excepted, leave the diggings for Sydney. But the charge for conveyance, one per cent, the government not being responsible for losses from any cause, deters many from availing themselves of the proffered protection ; indeed, the roads are so safe, and the feeling of security is so great, that single individuals fearlessly travel with large sums, and as much as £1000 or £1500 is fre-

quently conveyed to Sydney by the ordinary mail.

The first shipment of gold had been made towards the end of May, on board the 'Thomas Arbuthnot,' the estimated value being £800. By the 15th of August the amount shipped was calculated at 8329 oz. which, at the average value of the gold entered at the Sydney customs, would be worth £28,110 7s. 6d. The exports of gold rapidly increased. They had reached £70,000 on the 19th of August, £150,000 on the 6th of September, £219,000 on the 8th of November, and about £500,000 at the end of December.

Since September, several new and productive gold-fields have been discovered the number of persons at the mines has greatly increased, and the produce of gold has been proportionately enhanced. In November a mine was discovered on the Wentworth estate, near Summer Hill Creek, from which a single miner in one day raised £500 worth of gold. Immediately after the discovery the "golden lode" was closed,

and a company formed in Sydney for effectually working the mine. Lumps or nuggets of gold were frequently found at Louisa Creek, at Oakey Creek, near the head of the Turon, and at Ophir. A large lump found near the spot in which Dr. Kerr's 106 lbs. had turned up, was 9 inches in diameter, 21 inches in circumference, weighed 336 oz. and sold by auction in Sydney for £1,155.

END OF VOL. I.

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